The magazine for AUSTRALIAN Amateurs

November 2002
Volume 70 No 11

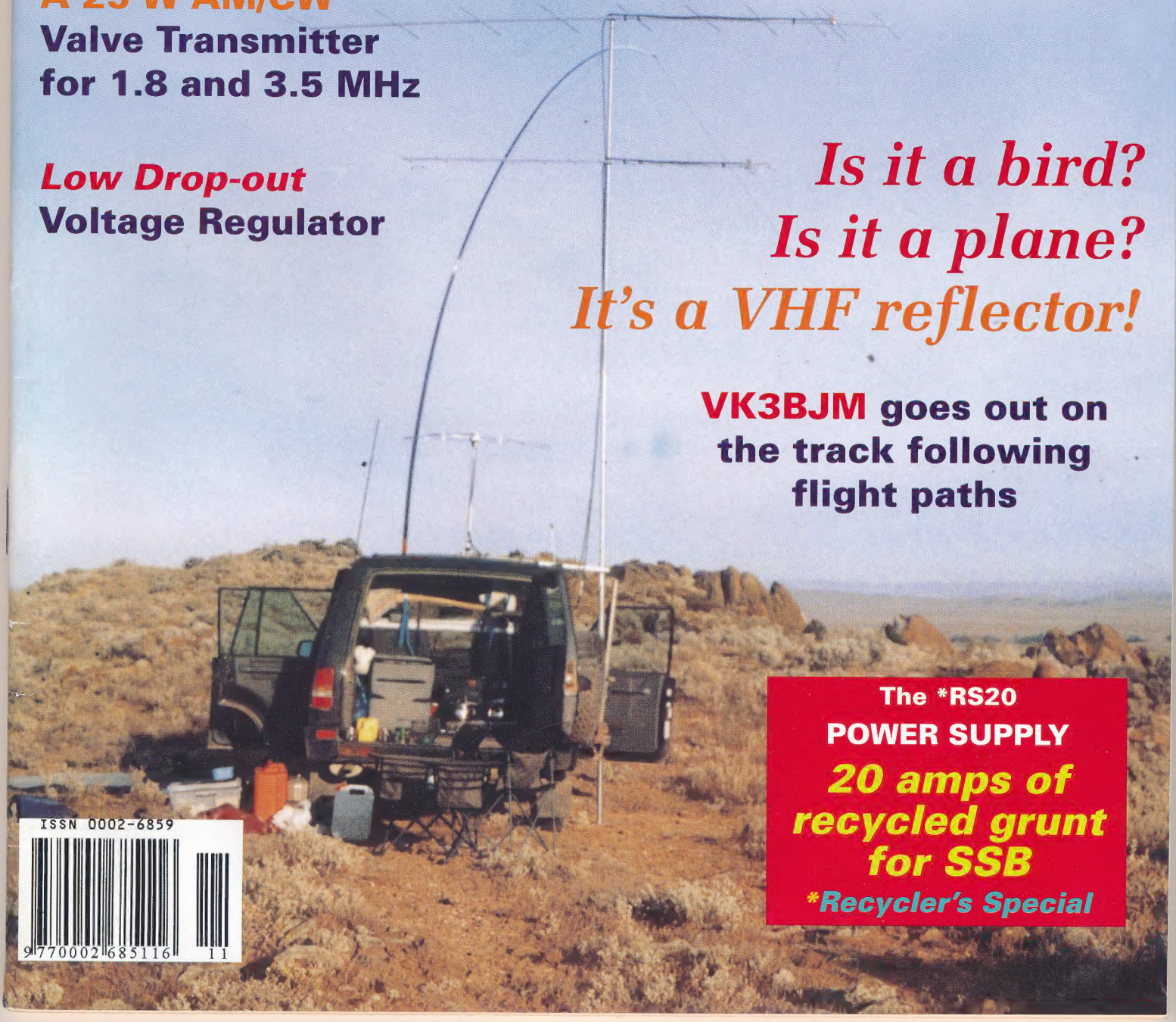
WIRELESS INSTITUTE OF AUSTRALIA

Amateur Radio

$ 5.95

Diamond:
A 25 W AM/CW
Valve Transmitter for 1.8 and 3.5 MHz

Low Drop-out
Voltage Regulator



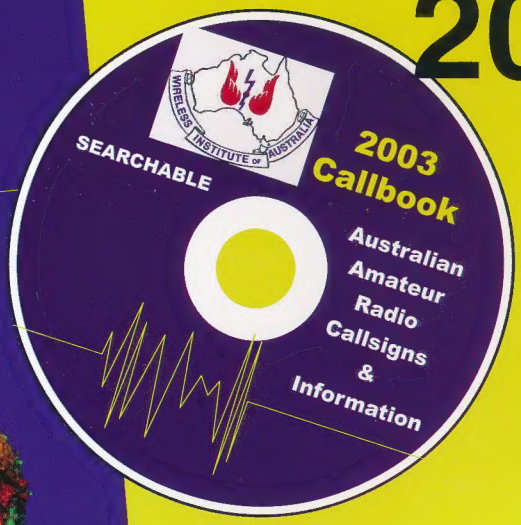
Is it a bird? Is it a plane? It's a VHF reflector!

VK3BJM goes out on the track following flight paths

The *RS20
POWER SUPPLY
20 amps of recycled grunt for SSB
**Recycler's Special*

ISSN 0002-6859
9 770002 685116 11

Callbook 2003



TWO FOR THE PRICE OF ONE.

This year we are offering the full Callbook/Handbook as a handsome
BOUND COPY
that would grace any shack or bookcase **AND** as a
FULLY SEARCHABLE DISC

Both publications contain all Australian callsigns by callsign order in easy-read format and about 60 pages all about beacons, packets, rules and regulations, repeaters, frequencies and bands and much other useful information all in one convenient unit.

And as a special bonus on the disc alone, Greater Circle information.

ABOUT SEARCHING ON THE DISC

The material in the disc is distilled into Acrobat files. Which means that any word in the disc can be found by using the Acrobat Reader's >SEARCH>.

Example. Say you wanted to know who in your area had an amateur callsign/licence.

Easy — put in your postcode, do a search and there are your choices. (we have included Acrobat Reader)

And about that two for the price of one offer.

WIA, through its Divisions and other outlets is making the set, full book and even fuller disc, available for a delivered price that compares extremely favourably with the 2001 price of the book alone.

Contact your division to place your order now. Details on page 16.

Amateur Radio

Volume 70
Number 11
November 2002

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI
Bill Roper VK3BR

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031
e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

The Editor AR
34 Hawker Crescent
Elizabeth East
South Australia 5112
Email edarmag@chariot.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

The contents of Amateur Radio are Copyright Wireless Institute of Australia © 2002

General

VHF reflectors in plane view 18
Barry Miller VK3BJM
Journey Round my Uncle 21
N J Hurll VK4HH
A sad farewell 34
Eric Jamieson VK5LP
Lieutenant-Colonel Sir Evan Nepean Bt - Silent Key 46

Technical

A 25 W AM/CW Valve Transmitter for 1.8 and 3.5 MHZ 4
Drew Diamond, VK3XU
Low drop-out voltage regulator 9
Keith Gooley VK5OQ
The RS20 Power Supply 11
Jim Tregellas VK5JST
The RS20 Power Supply Cautionary Note 17
Large loop with balance feed (Technical Abstracts) 20
Gil Sones VK3AUI
FOXX11 Mini Transceiver (Technical Abstracts) 28
Gil Sones VK3AUI
Bypass Capacitors (Technical Abstracts) 29
Gil Sones VK3AUI
Boom Correction Factors in Yagi Antennas 29
Gordon McDonald VK2ZAB

Columns

Advertisers' Index 55
ALARA 22
AMSAT 34
Awards 35
Beyond Our Shores 45
Contests 41
Club News 24
WIA Division News
VK1 Notes 30
VK2 Notes 31
VK3 Notes 31
VK4 Notes 32
VK6 Notes 33
Editor's Comment 2
Hamads 54
Ham Shack Computers 39
HF Predictions 48
How's DX? 37
Over to you 53
Silent Keys 20, 32, 34, 46, 47
Spotlight on SWLing 47
Technical Abstracts 20, 28, 29
VHF/UHF – An Expanding World 50
WIA Comment 3
WIA Division Directory 56
WIA Federal Directory 2
Will's Page 52

see story page 18

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary
Peter Naish VK2BPN

Federal Office staff
June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Barry White	VK2AAB
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive
Brenda Edmonds VK3KT
David Pilley VK2AYD
Don Wilschefski VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	Mal Johnson	VK6LC
Contests	Ian Godsil	VK3VP
Education	Ron Smith	VK4AGS
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Neil Penfold	VK6NE
Intruder Watch	Harry Andersson	VK8HA
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ
WICEN	John Weir	VK3ZRV

ACA Liaison Team
Glen Dunstan VK4DU (Corresponding)
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN

Editorial Comment

Colwyn Low VK5UE

Taking time out to have fun! *(Fun?)*

This has been a month when the home front took over my life and Christmas suddenly was very close. I did get out with WICEN and helped make the Classic Adelaide Rally a great success. I had a certain ammount of trepidation as I had said I had packet and I could put it in the Beetle. I had never had it out of a building away from the mains. So starting with 6 V main VW battery and 6 V secondary battery I had 12 V. But then I had to run the back up radios and the modem and would the internal battery in the 10 year old Toshiba laptop hold up for the 2 hours plus of reporting the competition stage of the rally? As luck would have it the VW system worked for the pre rally check out and I was able to borrow a 75Ah 12 V truck battery for the rally. It all worked so well I thought it was not working. The 5/8 whip on 145 MHz and the 8030 with the MJF 1270B worked perfectly. The main problem was sunlight on the liquid crystal display on the laptop. Steve VK5AIM who came with me to operate the voice net brought his solar cell and was able to keep current flowing into the battery. His set up also worked perfectly.

I had been looking forward to spending time on the Spring VHF/UHF Field Day but that was not to be. It can be good fun moving around and setting up and seeing how you can work out of different locations. Round Adelaide you seem to have a choice of taking to the hills or way out on the plains. If you head for the Hills then you must stay close to the western face or you lose all the people on the plain. You may be lucky and work a few stations in the eastern states but propagation has to be right. If you head for the plains you are limited as to how far west you go and keep your feet dry. You can go NW which I have done several times or you can drive a few hundred km and operate from the southern end of Yorke Peninsula and work across Spencer Gulf to the not so adventurous operating close to their homes in Adelaide. It does require some planning and the time to do the travelling.

This month's issue filled up rather quicker than I expected, so I was not frantically looking for material. However I do not have any photographs of suitable quality for a magazine cover at present. I need good clear photographs, with good contrast between the subject and the background. They are generally more interesting if they show people and equipment. They should be taken portrait orientation, that is long axis vertical. If a digital camera is used I need high resolution, a half Meg plus file. So if you are out operating this summer please see if you can take a photo for the cover of AR.

Reminders. Next issue is December / January and will be 64 inside pages. The following issue will be February 2003. Ross Hull VHF contest starts December 26th.

So as we need to use our frequencies to keep them, chase DX, rag chew, experiment or operate in the contests but have fun as well!

73 Colwyn VK5UE

Book Review—New Guinea Engineer

In the October issue of AR we published a review of this book on page 11.

Unfortunately we left out the following.

Publisher Rosenberg Publishing Pty Ltd. PO Box 6125 Dural Delivery Centre NSW 2158. Telephone 02 9654 1502 Email rosenbergpub@smartchat.net.au. The ISBN 1 877058076. rrp $29.95 October 2002.

With this information any bookshop should be able to get you a copy.

WIA Comment

Ernest Hocking VK1LK
WIA Federal President
president@wia.org.au
PO Box 691, Dickson ACT 2602

A Busy Time

Writing this month's president's notes has proved to be extremely difficult. Amongst the reasons for this were a change of job and falling prey to some sort of flu bug. During this time I have been stuck by something that I feel sure we all know – namely that amateur radio is for the majority of us a hobby. This brings me to the theme of this month's notes namely the importance of the volunteer.

Volunteers

Amateur radio is full of volunteers. We all know of the excellent work performed by WICEN. In the past few weeks we have witnessed a continuation of the round of international terrorism with the appalling attacks in Bali and then in Moscow. I am sure that many of us have been touched by these awful acts. In addition we are rapidly entering the bush fire season throughout Australia. Up until now we can be thankful that the activities that many of us participate in support of WICEN activities have been in support of community events such as car rallies, and community events such as fun runs. However recent events serve to remind us of the more serious purpose of the training and service that WICEN volunteers train for. I, as I am sure you do, hope and pray that we will never be called upon to have to call upon our WICEN volunteers to serve Australia in a real crisis. However recent events do serve to remind us of the importance of such assistance to the Australian community in times of need. I would ask you all to continue to support our voluntary activities in any way that you can.

WIA volunteers

Talking of volunteers we are always looking for volunteers to support WIA Federal activities. Amongst the current open posts are those of AR editor, federal contest coordinator, call book editor, and marketer. If you believe you have the skills and time to help out then I would be delighted to hear from you. As with any voluntary work it can be demanding but the rewards by far out-way the demands. If you are interested in helping then please drop me a line and we can talk to discuss options in more detail.

Foundation licence

The draft foundation licence paper is still being discussed by the WIA council and divisions. As suspected at the time of its distribution there are many aspects of the proposal that have caused a few concerns. For example comparison of the current UK Foundation licence privileges with the Australian novice licence reveal that the direct adoption of the UK model would lead to a situation where a foundation licence holder would hold greater privileges that a novice operator. However this is ultimately something that I am sure that we can overcome by observing that whilst amateurs struggled with packet radio for many years general access to the Internet does not require that the general public be examined in digital electronics and networking. More important than these issues is the fact that the foundation licence provides a means to rekindle an interest in amateur radio in a new generation of amateur radio operators. This optimism has been borne out by the UK experience with the scheme there attracting significant numbers of new entrants to the hobby. I am sure that you will all agree that we need to be able to look forward if we are to ensure the future of amateur radio and be prepared to look critically at our current licensing privileges.

In conclusion I note that despite the pressures of work and other activities that amateur radio is an extremely rewarding hobby. Although at some points in our lives it may prove to be a challenge to focus as much time on our hobby as we would like it will always be there for us to enjoy. So until next month's note I wish you all the very best and I look forward to hearing from you all. If you have recently written to me then please be assured that I will get around to replying –it will take me a little time to get to respond to the large number of letters that I have received in recent weeks.

73s de Ernie VK1LK

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the months of AUGUST and SEPTEMBER

L21192	Mr L T Jones	VK4BVM	Mr P R Fraser	VK1XLW	Mr B L Williams	VK3JHN	Mr J Simister
L50753	P S Russell	VK4HRM	Mr R Midson	VK2AYI	S Clark	VK3KOS	Mr R J Williams
VK1BSM	Mr G W Collins	VK4YAP	Mr E Fardin	VK2IOW	P Staples	VK4AJL	Mr G E Glendinning
VK2AGC	Mr C G Cottle	VK5HKT	Mr K T Thole	VK2ZEE	P Collen		
VK2HEJ	Mr J R Vetters	VK5VK	Mr B Hubbard	VK3FML	Mr M Boudreaux	VK4ZS	Mr I M Mowat
VK2JTV	Mr P F Mahoney	VK6KHD	Mr N H Dudley	VK3HFS	Mr G Stowell	VK5VST	Mr S T Vickery
VK2TTG	Mr S Morton	VK7CV	P C Holland	VK3HSS	Mr K Sadler		
VK2TUI	Mr A R Smith	L10179	D F Fatouros	VK3JA	Central Goldfields ARC		
VK2ZK	Mr B S Spindor	VK1KT	Mr K E Threlfall				

A 25 W AM/CW Valve Transmitter for 1.8 and 3.5 MHz

Drew Diamond, VK3XU
45 Gatters Rd., Wonga Park, 3115.

Amplitude modulation transmission for local and interstate 'phone work has many supporters, particularly on our two lowest frequency bands; 1.8 and 3.5 MHz. For instance, in the Melbourne area, the friendly weekday 11 a.m. "Coffee-Break" net has been going for at least 30 years on 1.825 MHz. And at night, 1.843 MHz is a good spot for AM users. Also, a large group of AM fans gather for a "round-table" on Friday nights at 1100 Z on 3.566 MHz. As a fraternity, AMer's are generally experimenters, "home-brewers" and modifiers of commercial rigs.

This project is an answer to numerous suggestions and requests for- "a simple, effective, AM transmitter- using valves and obtainable parts". My first effort, a plate and screen-modulated 50 watter, turned out to be a rather large and heavy "boat-anchor". So it was felt that something smaller and lighter would be more acceptable.

Several of the parts required can no longer be purchased new. However, an earnest attempt has been made to employ components, which may reasonably be obtained without too much difficulty. The power transformer for instance, is a type which was specified in various Electronics Australia "Playmaster" amplifiers of the 60s and 70s, and so it is a good bet that similar items are still lying around in junk-boxes all over the country just waiting to be included in a worthwhile project. The need for a modulation transformer has been dodged by choosing clamp-tube modulation of the screen (Ref. 1 pp259-260) and control grid. Such "efficiency" methods are sometimes unkindly regarded as "band-aid" or emergency schemes. Never the less, considerable experimental work has gone into the prototype model, with the result that the quality of speech and modulation depth is very satisfactory, and good to complimentary on-air reports have been received.

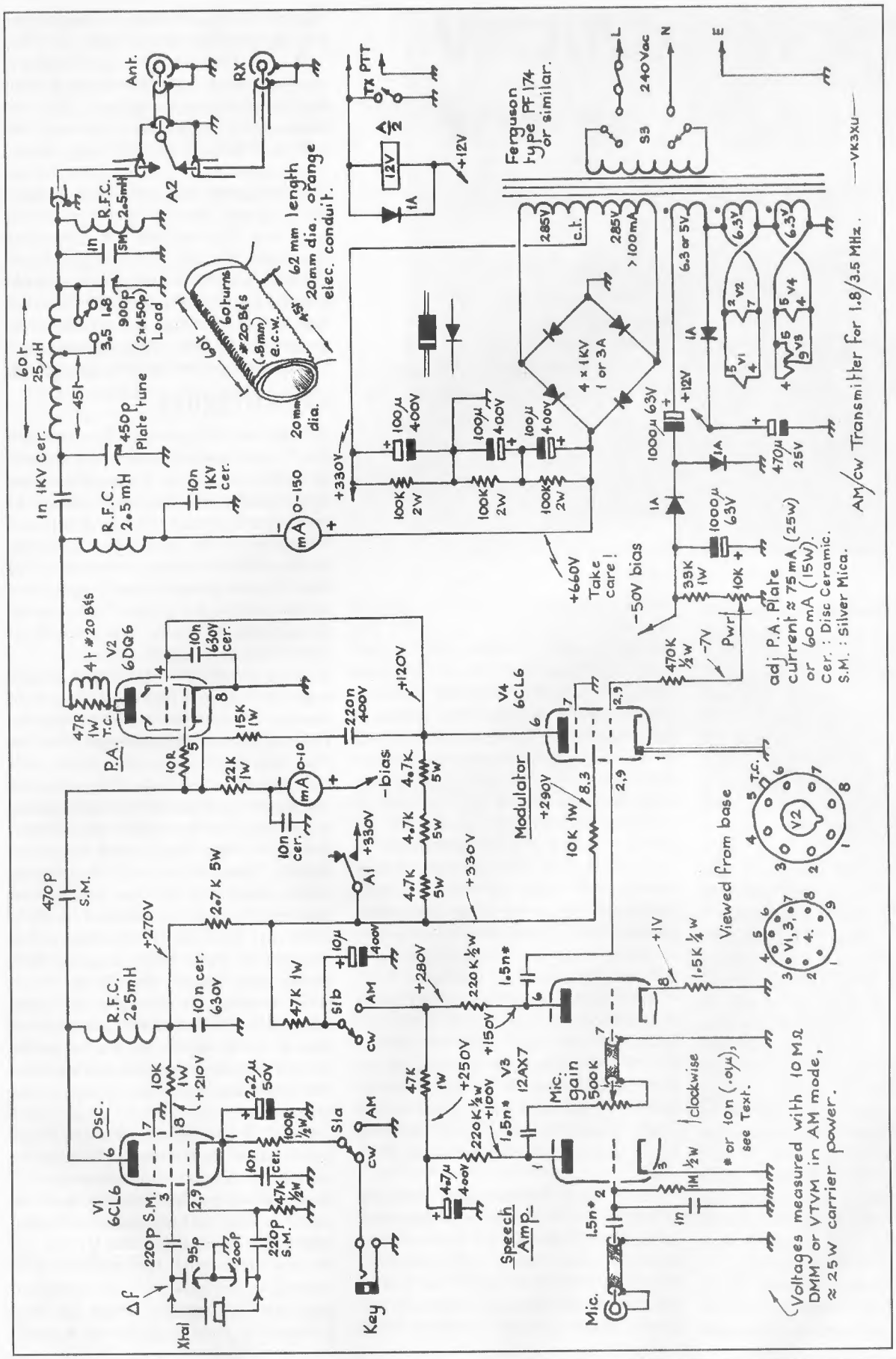
Output power into a 50 ohm load is about 20 to 25 W on AM, and 25 W on CW. Harmonics of 1.8 and 3.5 MHz are approximately 40 dB below fundamental- which is quite satisfactory for a such a simple pi-coupled output power amplifier. When put through the (usually) necessary antenna coupler, harmonic radiation should be sufficiently low for all normal work. In practice, the 25 W AM signal, fed into a quarter-wave long inverted 'L' or similar antenna should result in good readability reports from most operators in and across town, and interstate contacts are possible at night.

Photo 1. 25W AM/CW Transmitter

Circuit

To keep things simple, crystal control is employed because most known AM enthusiasts seem to gather on just a few frequencies, typically 1.825 MHz day, 3.566, 1.843 and 3.580 MHz night, these latter two being cheap off-the-shelf crystal frequencies. A 6CL6 power pentode at V1 is wired as an electron-coupled Pierce oscillator (Ref. 1 p161), where the screen grid (pin 3 or 8) acts as 'plate', and the amplified output signal is extracted from the un-tuned plate at pin 6. The suppressor grid (pin 7) effectively screens the plate from the crystal circuit, and thus we get an oscillator and buffer in one envelope. Isolation is very good, with no "pulling" of the crystal frequency by variations in output loading, or "FMing" caused by modulation.

Oscillator signal is applied to the control grid of the power amplifier (P. A.), pin 5 of V2, a common 6DQ6 beam power tetrode (much used in B & W TV sets). The maximum plate voltage for the 6DQ6 is specified as 770 Vdc (Ref 2). In this iteration, high-tension supply is about 660 Vdc. A bias of about -50 Vdc is applied to the control grid via a 22 k resistor. Screen grid of the P.A. (pin 4) is sourced through 14.1 kΩ (three 4.7 kΩ 5 W resistors in series). Plate impedance



Ant.
RX
A2
R.F.C. 2.5mH
1n
SM
900p (2×450p) Load
3.5 1.8
60t 25μH
45t
450p Plate tune
1n 1KV Cer.
R.F.C. 2.5mH
10n 1KV cer.
mA 0-150
60 turns #20 B&S (.8mm) e.c.w.
62 mm length 20mm dia. orange elec. conduit.
20mm dia.
TX PTT
12V
1A
+12V
Ferguson type PF 174 or similar.
S3
240Vac
L
N
E
285V c.t.
285V >100mA
4 × 1KV 1 or 3A
6.3 or 5V
6.3V
V1
V2
V3
V4
1A
1000μ 63V
470μ 25V
+12V
+330V
100μ 400V
100K 2W
+660V Take care!
-50V bias
33K 1W
10K
470K ½W
-7V
Pwr
adj P.A. Plate current ≈ 75 mA (25W) or 60 mA (15W).
Cer. : Disc Ceramic.
S.M. : Silver Mica.
AM/CW Transmitter for 1.8/3.5 MHz.
VK3XU
4t #20 B&S
V2 6DQ6
47R 1W T.C.
P.A.
10n 630V cer.
15K 1W
220n 400V
+120V
10R
22K 1W
mA 0-10
-bias
10n cer.
4.7K 5W
A1 +330V
V4 6CL6
Modulator
+290V
10K 1W
470p S.M.
2.7K 5W
+270V
R.F.C. 2.5mH
10n cer. 630V
47K 1W
S1b
AM
CW
+280V
220K ½W
1.5n*
+150V
+1V
1.5K ¼W
Viewed from base
T.C.
V2
V1, 3, 4.
Osc.
V1 6CL6
10K 1W
+210V
2.2μ 50V
100R ½W
10n cer.
47K ½W
S1a
220p S.M.
95p
200p
220p S.M.
Δf
Xtal
Key
47K 1W
+250V
220K ½W
+100V
1.5n*
V3 12AX7
Mic. gain 500K
clockwise
* or 10n (.01μ), see Text.
4.7μ 400V
Speech Amp.
1.5n*
1M ½W
1n
Mic.
Voltages measured with 10 MΩ DMM or VTVM in AM mode, ≈ 25W carrier power.

Figure 1

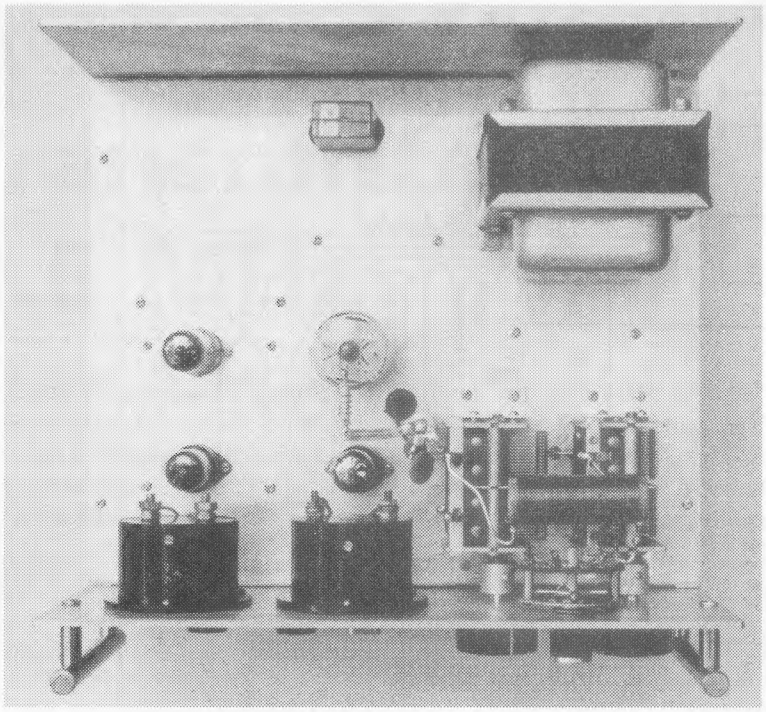


Photo 2. Above chassis view

of the P.A. is matched to a nominal 50W load with a simple pi-coupler network, comprising a coil and ordinary dual-gang 450 pF/section variable capacitors- a single section for tuning, and two sections for loading adjustment. A 2.5 mH choke is connected across the loading capacitor in order to provide a dc path, and thus lessen the possibility of voltage breakdown between the capacitor's plates. More importantly to ensure that, should the 1 nF plate coupling capacitor fail, the mains fuse will blow, and thus prevent 660 Vdc from reaching the output connector.

The modulator/clamp V4 is connected between the screen of V2 and chassis ground, where the effective plate-cathode resistance of the valve may be varied by altering the value of negative voltage applied to the control grid (pin 2 or 9). The 10 k bias pot may therefore be adjusted to set the screen voltage, which in turn controls the value of standing plate current, and hence the power delivered to the load. In AM mode, a plate current of between about 60 and 75 mA yields best modulation characteristics. Under these conditions, the modulator may now be used to vary the screen voltage at an audio rate.

Most tetrodes cannot be made to go right down to zero output when the screen voltage is made a low value, and 100 % modulation is therefore difficult to achieve under normal conditions. The valve's transfer characteristic is also quite non-linear at low levels of screen voltage. In order to 'pinch-off' the plate current (and thus reduce the output to zero) more effectively on negative peaks of the modulating waveform, a small amount of modulation signal is also applied via the 220 nF capacitor and 15 k resistor to the control grid of V2. By having a reserve of power availability (or "head-room"), positive swings of screen voltage will cause the P.A. to deliver additional power on these peaks, and hence achieve a level of modulation that is "fuller" than that normally obtainable with simple screen modulation.

Audio signal from dynamic or electret microphone is applied to a 12AX7 double triode speech amplifier (Ref. 3 p251). This amplifier circuit, in my experience, is one of the simplest and easiest to get working. I have used it many times in various projects. And 12AX7s are not difficult to obtain- even new.

In CW mode, the oscillator's cathode is keyed. Keyed waveform is shaped by inclusion of the 2.2 µF capacitor in combination with a 100Ω resistor. Provided that the crystal is not pulled too far off its nominal frequency, the keyed wave is quite clean, without excessive chirp or whoop. Voltage across the open key contacts is a safe 25 Vdc.

For satisfactory modulation characteristics, it was found that a plate supply of between 650 and 700 Vdc works best. The power transformer has a HT winding of 285-0-285 Vac which, when applied to a full-wave bridge rectifier, gives about 660 Vdc supply under load. The c.t. of the winding provides 330 Vdc for the remaining circuitry. The 100 µF/400 VW filter capacitors assure a smooth, low ripple supply. For negative bias, the three 6.3 Vac heater windings are connected in series for 19 Vac, then applied to a voltage doubler for the -50 V bias supply.

Construction

Let me state a warning: The voltages used in this transmitter are quite capable of killing a person. All mains wiring must therefore be adequately covered to prevent accidental contact. A top and bottom cover are essential- the top cap of the 6DQ6 is always alive with 660 Vdc. You are aware of the danger, but a visitor may not be- that "shiny glass thing with the funny hat" would be irresistible to children.

At local metal re-cyclers, and at very reasonable cost, I had a bit of luck in finding much of the necessary chassis material, including perforated sheet for the top and bottom covers. My homemade aluminium box measures 305 x 205 x 265 mm WHD, and is made in a similar manner to that described in Ref. 4 (see also Refs 5 and 6 if you are new to "chassis bashing"). It could be made smaller if desired, but not so diminutive that any needed work is difficult. Remember also that a fair amount of waste heat is generated, particularly around the 6DQ6, which will need to be able to ventilate adequately. Front and rear panels are 3 mm al. sheet, which are supported by 12 mm square section connecting rods. The chassis pan may be 1.3 or 1.6 mm aluminium.

Photo 3 is a below chassis view. Layout is not at all critical, although the oscillator V1 and speech-amp. V3 should be located fairly close to the front panel in order to keep sensitive wiring reasonably short (take care V1 and V3 do not clash with the meters). The crystal socket(s) should be mounted upon the front panel, adjacent the delta f capacitor (which provides a small

adjustment in crystal frequency). The delta f cap. may be an MSP 95 + 200 pF, or a 90 + 90 pF.

Our usual electronics suppliers have tag boards and tag strips, which are ideal for mounting "valve" type components. Use ordinary hook-up wire (twisted into pairs with a hand-drill) for the heater wiring and other connections. The +660 Vdc run should be made with suitably voltage-rated insulated wire. Note that a rubber grommet should be fitted where the 660 Vdc connections pass through the chassis (plate current meter and V2 plate choke). The same applies to any transformer wires, which must pass through the chassis.

If you have one of those nice chassis-mount 2.5 mH chokes for V2, use it. Otherwise, an ordinary 3 pin choke will need to be mounted upon a stand-off insulator. I used a length of nylon rod, with solder tags fitted. The choke should be suitably current rated (i.e. measure less than about 30Ω d.c.). The plate parasitic suppressor for V2 is 4 turns of #20 tinned copper wire wound upon a 47 ohm 1 W resistor. I could not find a top cap connector, so fabricated one by coiling a length of small brass wire rod upon a slightly under-sized drill shank to fit the 6DQ6 plate top cap.

Various common materials were tested for use as tank coil former, including 40 mm poly water pipe wound with #18 B&S e.c.w. Paradoxically, 20 mm orange plastic electrical conduit material, wound with 60 turns of #20 B&S e.c.w., which is more conservative of space, gave as good results as the larger former, in that the output power is the same; 25 W for 75 mA plate current. Do not use the lossy grey material.

A plate current meter is mandatory, one of about 100 or 150 mA f.s.d. would be ideal. A grid current meter is not essential, but handy. On 1.8 MHz, grid current is typically 1.5 or 2 mA (depending on crystal activity). On 3.5 MHz it is rather less; typically about 0.5 mA. The -50 V bias supply eliminates the need for the more usual class C bias obtained by rectification of the drive signal- no drive, no PA plate current in this case. My model uses a 10 mA meter, but a 5 mA would be better.

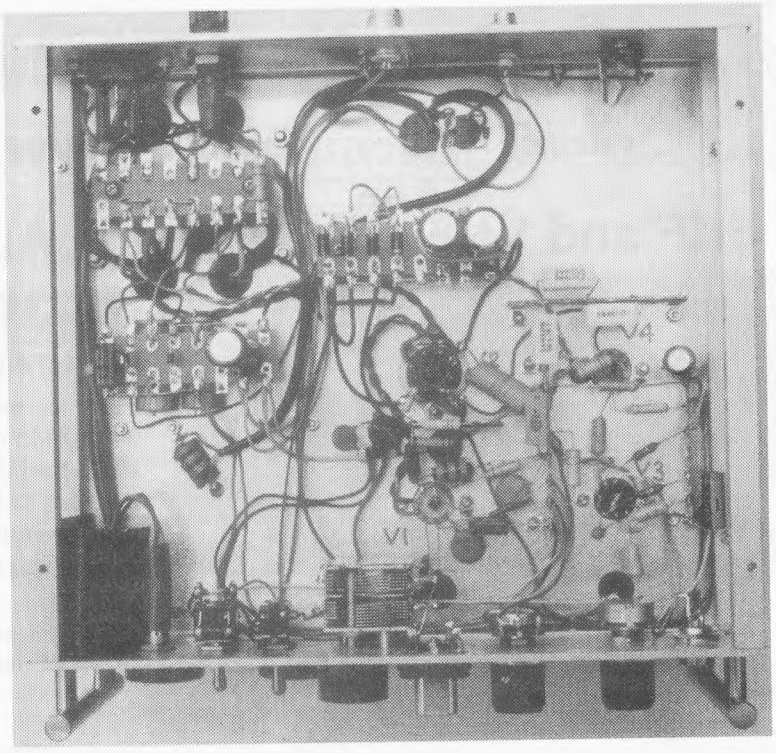


Photo 3. Below chassis view

Operation

Confirm that all wiring is correct, and that polarised components (diodes and electrolytic capacitors) are properly oriented. Remove all valves. If you are the fortunate owner of a "Variac", bring the input voltage up slowly, and with your multimeter on the 1000 V range, observe that the main HT (660 V) supply comes up to about 700 V. Carefully measure the 330 V and -50 V supplies. No Variac? Wire a 240 V 60 W lamp in series with the transformer primary. Cover all exposed connections. Apply mains voltage- the lamp will glow briefly, then, all being well, should extinguish, or die down to a dull orange glow. Carefully measure the 660, 330 and -50 V supplies.

Switch off, wait 30 sec. for the electrolytics to discharge, then insert the 6CL6 oscillator valve V1, and a suitable crystal. Switch to AM mode, then close the PTT line. Relay 'A' must pull in. You should be able to hear the crystal oscillator signal on the station receiver, which should have a pure "T9" note- free of FM and hum.

Withdraw the mains plug, wait 30 sec., and install the remaining valves. With the mode switch on AM, PTT open (RX mode), Pwr pot at minimum bias (i.e V4 hard on), crystal installed, P.A. tank band-switch set to correspond with the crystal, and a suitably rated 50 ohm power meter or dummy load connected to the transmitter's output; apply mains power. As the valves warm up, there should be no plate current indicated. If the plate current rises to an alarming level, switch off, unplug and find out why (may be "gassy" 6DQ6). All being well thus far, switch to TX and adjust the Pwr pot for about 60 mA, then quickly adjust the tune and load capacitors for maximum output, where you will observe a corresponding 'dip' in plate current. Take care that you do not tune to a harmonic, which is the unwanted power peak obtainable at a smaller value of C than the main peak. At 60 mA plate current you should have about 15 or 20 W output power indicated, and at 75 mA the power output should be about 25 W. You may be able to briefly crank the power up to 50 W or so, but the 6DQ6's rating is then exceeded.

An oscilloscope is the most ideal tool to set up the modulation percentage level. If available, hook the 'scope's X10 probe across the output connector, then speak into the microphone. Adjust the mic. gain pot for 100 % modulation, indicated by bright spots just occurring at the zero crossings, and nicely rounded peaks. A steady whistle should produce

continued on page 10

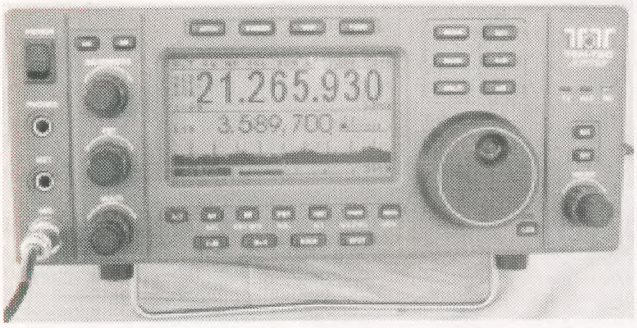
TTS Systems Communications Equipment

TTS Systems

FREE CATALOGUE

www.ttssystems.com.au

HF and VHF Transceivers, Autotuners and Kits



TEN-TEC

Jupiter HF DSP Transceiver

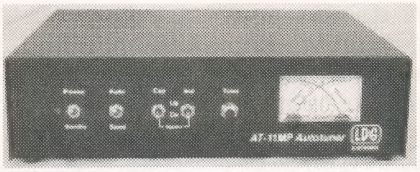
Easy-to-read LCD main panel display.
34 built-in receive filters—300 to 8000 Hz.
Multi-function meter provides bar graph and digital readout of signal strength, TX power and SWR.
Band sweep function
Seven selectable main tuning rates

Get Kitted Out

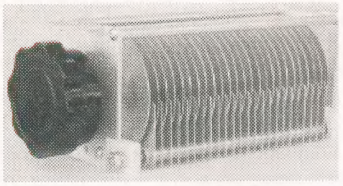
"It goes better on something you made yourself"

Z11 QRP Auto Tuner Kit

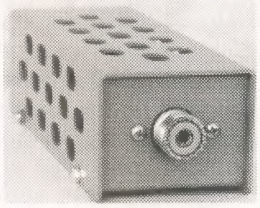
HF Receiver Kit



AT11-MP Auto Tuner Kit

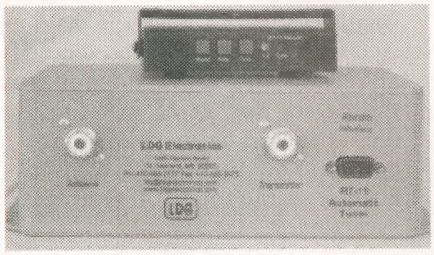


H.V. Variable Capacitor Kit



Dummy Load Kit

10-2M Transverter Kit



RT11 Remote Auto Tuner Kit

About to be released from Ten-Tec The Orion HF 32 bit DSP Transceiver and the Argonaut V QRP IF-DSP Transceiver.

TEN-TEC

We have RF Cables, Connectors and Baluns

Service and Support for all Ten-Tec and LDG equipment

★ All kits include easy-to-follow step by step assembly instructions.

You supply the soldering iron and basic tools!!!.

All kit products can be supplied fully assembled and tested.

We stock ***Amidon Iron Powder and Ferrite Cores*** *— Call for an application guide*

Phone 03 59774808. Fax 03 59774801 info@ttssystems.com.au

Low drop-out voltage regulator

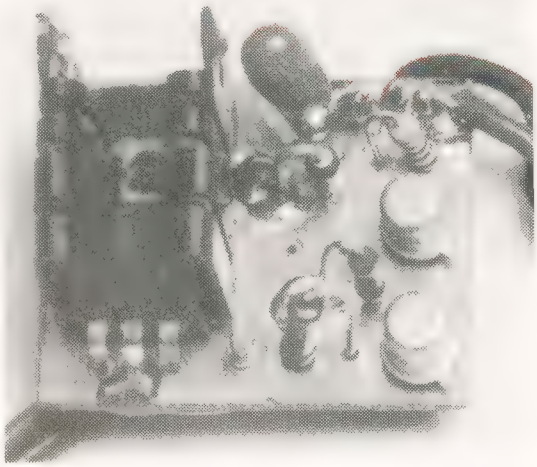
Keith Gooley VK5OQ

A voltage regulator for operating nominal 12 volt low power radios from a vehicle.

This discrete component voltage regulator is intended for powering a hand-held radio from a 12 volt vehicle electrical system. A typical hand held has a maximum supply rating of 13 volts. In my case it is a Yaesu FT-50R and I am unwilling to test this rating by connecting it directly to the 12 volt system in the car. This nominal 12 volts can rise to over 14 volts when the battery is fully charged and the alternator is running fast, supplying the other requirements of the car. In addition, there are large transients on a vehicle system plus noise and "hash" from a variety of sources. It is therefore desirable to protect the radio from the worst of these.

Why build a regulator from discrete components? Surely there are IC's around which will do the job. Well, yes there are. The National Semiconductor LM2940T-12 would fit the bill but there are 3 reasons why I didn't use it. Firstly, I didn't have one and they are not that readily available (read not stocked by Dick Smith at all their stores). Secondly, I like to do it myself and there is more satisfaction in producing a design that works than simply dropping in an IC. Thirdly, this design has a lower voltage drop than the IC, 0.2 compared with 0.5.

So when the engine is off and the battery volts are dropping towards 12, my design will keep the voltage to the radio up to 12 longer than the IC. However, there are disadvantages, mainly in the area of protection against excessive current and reverse battery connection. But then we all know IC regulators are not immune from failure due to these factors, in spite of what the data sheet says.



So, that's the what is it? And why? Now the how? Low drop regulators invariably use a PNP pass transistor in the positive lead and this function is carried out by TR1 a readily available MJE2955. When power is applied to the input, current flows through R2 turning TR2 hard on. The resulting collector current in TR2 turns TR1 on. The output voltage rises until the zener diode draws sufficient current to turn on TR3. This tends to turn off TR2 and the output voltage stabilises at a point equal to the sum of the zener voltage and the forward base-emitter voltage of TR3.

If the load current increases, the output voltage will tend to fall and so TR3 will draw less current and TR2 will turn on harder supplying the base current to TR1 necessary for it to maintain the output voltage constant. The usefulness of this circuit becomes clear when the input voltage drops towards 12 volts. If the point is reached where the input voltage is not high enough to keep the output regulated, zener diode D1 no longer draws enough current to keep TR3 in its active region and the latter turns off. TR2 then pulls maximum base current from TR1 which is turned hard on, giving minimum voltage drop from input to output, in this case about 0.2 volts at 1 amp load current.

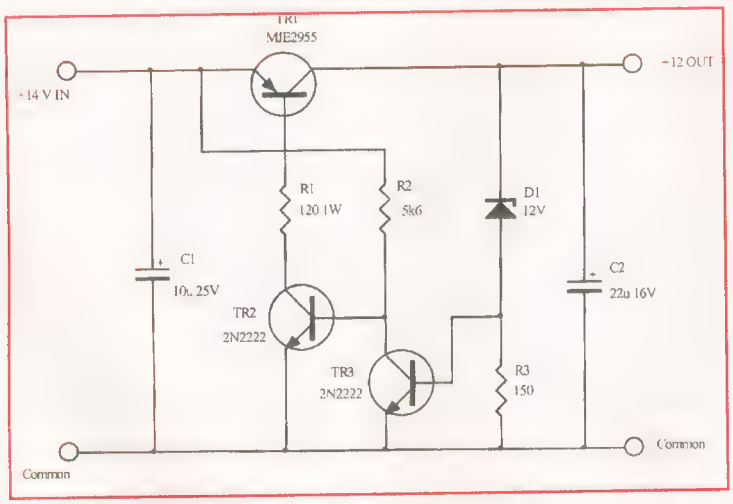


Figure 1. Low Voltage Drop Voltage Regulator

Construction

The prototype was built on a small section of single sided laminate as shown in the photograph. Holes were

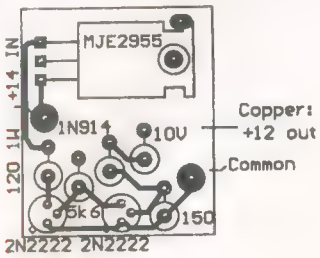


Figure 2. Circuit board layout

continued on next page

Low drop-out voltage regulator

Continued from page 9

drilled for the components using the PCB layout as a template and the component leads used to make connections on the underside of the board. This method of construction was described in reference 1. Constructors may use the layout supplied to make their own PCB or build the regulator on matrix board. The layout gives enough room to accommodate a heatsink (for example DSE #H3403). The top copper layer in the prototype is used for the positive output rather than the more usual common lead as the pass transistor TR1 collector can be mounted directly on the heatsink without the need for an insulator and the heatsink is in turn attached to the board.

I have specified 2N2222's for TR2 and TR3 but any general purpose NPN small signal transistor will do, eg BC547, 8,9 BC107,8,9 BC337. This latter would be a good choice for TR2 which can draw 100 mA when full on.

Having completed the regulator and tested it for correct operation, all that is required is to connect a DC lighter plug to the input lead and an appropriate plug to the output lead. I used a coaxial DC plug that then plugs into the lead to the radio. It would be a good idea to insulate the completed regulator with electrical tape or as I did with large diameter heatshrink tube.

Conclusion

A low voltage drop discrete component regulator is described enabling transceivers requiring a maximum of 12 volts to be safely operated from a vehicle electrical system. The design described has a lower voltage drop than an integrated circuit type of regulator.

Reference

Gooley, Keith VK5OQ "A 10 MHz Crystal Reference Oscillator" *Amateur Radio* August 2001

A 25 W AM/CW Valve Transmitter for 1.8 and 3.5 MHz

Continued from page 7

a "text-book" 100 % sine-wave modulation pattern.

Without an oscilloscope, the quality and percentage can be checked on your station receiver. The signal must not be so strong as to overload the receiver. Increase the mic. gain until perceptible distortion occurs, then back off a little from that point. Best AM should be obtained with a tuned plate current of between about 60 and 75 mA. The three 1.5 nF (0.0015 µF) coupling caps in the speech amp were found necessary with my voice/microphone. However, you may find that larger values, typically 10 nF (0.01 µF) may give a "rounder" sound.

On CW mode, plug in an ordinary Morse key, then switch to TX. Adjust the plate current to about 75 mA. When the key is open, the plate current should fall back to zero- or a fairly low value, ideally less than 30 mA. Provided that the crystal is reasonably active, and not "pulled" too far, keying should sound clean, without excessive clicks or chirps.

Parts

Items such as 1 W and smaller resistors, 5 W wire resistors, polyester capacitors, 400 or 450 V electrolytic caps, tag strips, connectors, pots, 1 kV diodes, ceramic caps, winding wire, valve sockets, 12 V relay (with two sets of c/o contacts), toggle and rotary switches, knobs etc. are known to be collectively available from our usual electronics suppliers, including Altronics, DSE, Jaycar and Electronic World. 2 W resistors and many of the above should also be obtainable from your local supplier to the TV service trade. Things like the power transformer, two-gang variable capacitors (the ordinary kind, as used in valve B.C. sets), meter(s), silver mica capacitors, 2.5 mH chokes (to carry more than 100 mA) and valves, are usually (in my experience) procurable at hamfests. And if you are in a radio club, one of the members is sure to have that needed item- just ask. Finally, new 6DQ6, 12AX7 and 6CL6 (or the cheaper 6197) valves are available by mail order from at least one USA supplier. I always receive good service from; Antique Electronic Supply, 6221 South Maple Ave, Tempe, AZ, 85283, USA. For pricing, check out their web site at: www.tubesandmore.com

References and Further Reading

1. The Amateur Radio Handbook, 3rd edition, 1961, RSGB.
2. RCA Receiving Tube Manual; Technical Series RC-23.
3. The Radio Amateur's Handbook, 43rd edition, 1966, ARRL.
4. "From Circuit to Chassis"; Diamond, AR, Dec. '00.
5. "How to Lay Out a Transmitter"; Byron Goodman, W1DX, QST, July '51.
6. "How to Build a Transmitter"; Byron Goodman, W1DX, QST, Dec. '51.

Coming next issue...

★ Some Uses for a Dip Oscillator
Drew Diamond

★ Measuring Echoes and Propagation on the HF Bands
Peter Kloppenburg

★ The No PA 40 metre DSB transceiver
Peter Parker

The *RS20 Power Supply

*Recycler's Special

20 amps of recycled grunt for SSB

Jim Tregellas VK5JST

A heavy duty 13.8V power supply is a fine thing to have in the shack , but unless you acquire one secondhand, is an expensive little beastie to buy. This means building one should be considered, not only for the cost savings, but also because you can brag about it to your mates on air. Of course, careful consideration must be given to the properties of the completed supply, and after talking to a few of my friends who have built their own and fallen into all the traps, here are the printable ones: RF proof, easy to make, commonly available parts used, but above all cheap. (Other suggestions such as 'catches fire infrequently ' were ignored)

Well, last things first. Breaking down the construction costs of a heavy duty regulated supply, they are in order:

1. The transformer (around $80)
2. The main filter electrolytics - new, these are a frightening price and you can expect no change from $80
3. The case - a metal case is well beyond the workshop capabilities of many amateurs and is quite expensive to buy (if you can).
4. The meter - around $20 - $27 (either digital or analog)
5. The electronics - transistors, resistors, diodes, etc.
6. All the bits - fuseholders, terminals, switches, solder tags, nuts and bolts, power cords, etc.

Dealing with these in turn, we can reduce the cost greatly by rewinding a microwave transformer (about $5 total), scrounging old computer grade electrolytics (lots around), and designing the electronics to be so RF proof that a wooden case can be used - yes, that's right-wooden ! If you are really stuck for a dollar, then good supply regulation and overload protection also allow all metering to be deleted. Finally the wooden case allows 1/4 inch bolts and washers to be substituted for expensive terminals or connectors. If you can't put

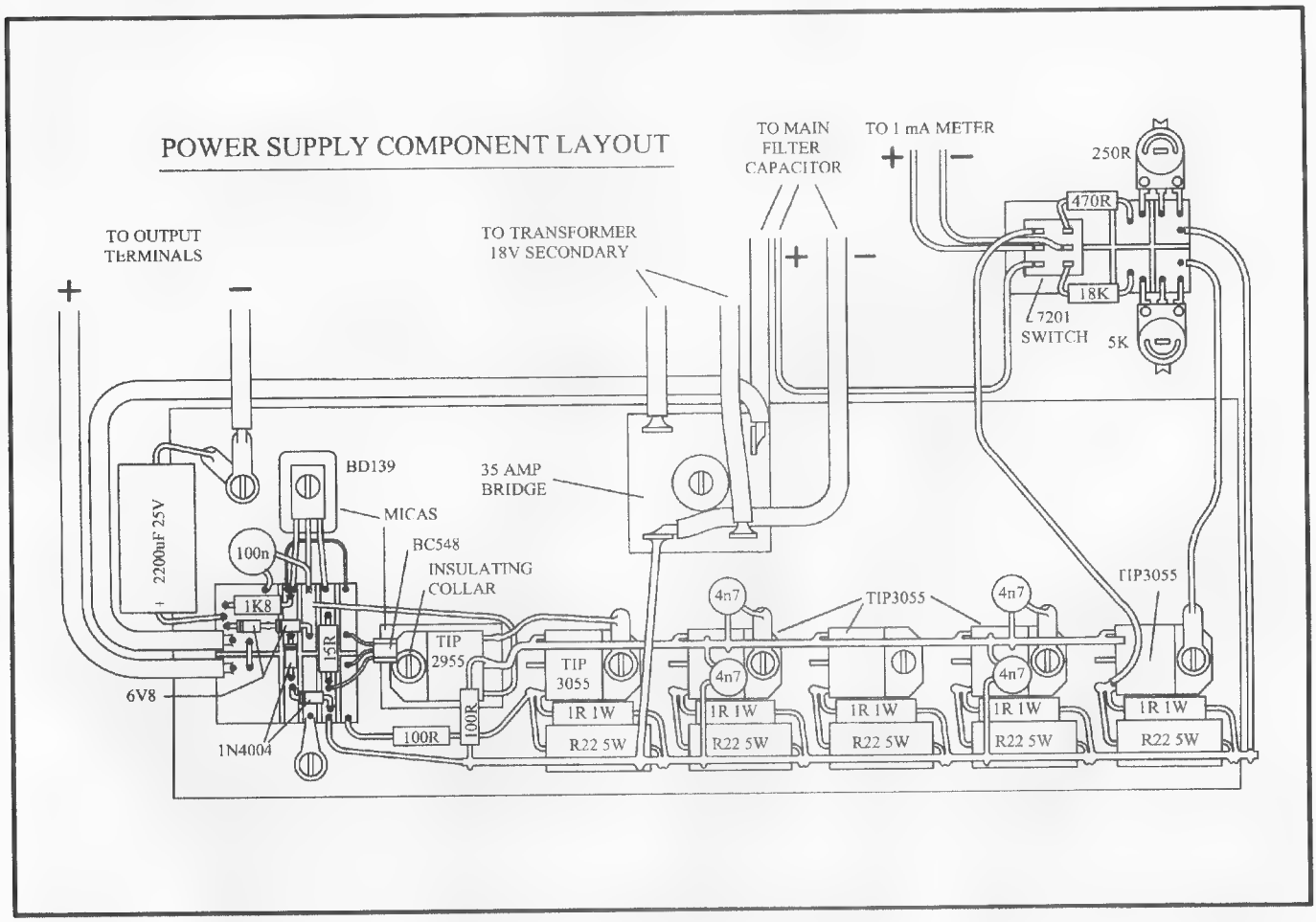


Figure 1. Component layout

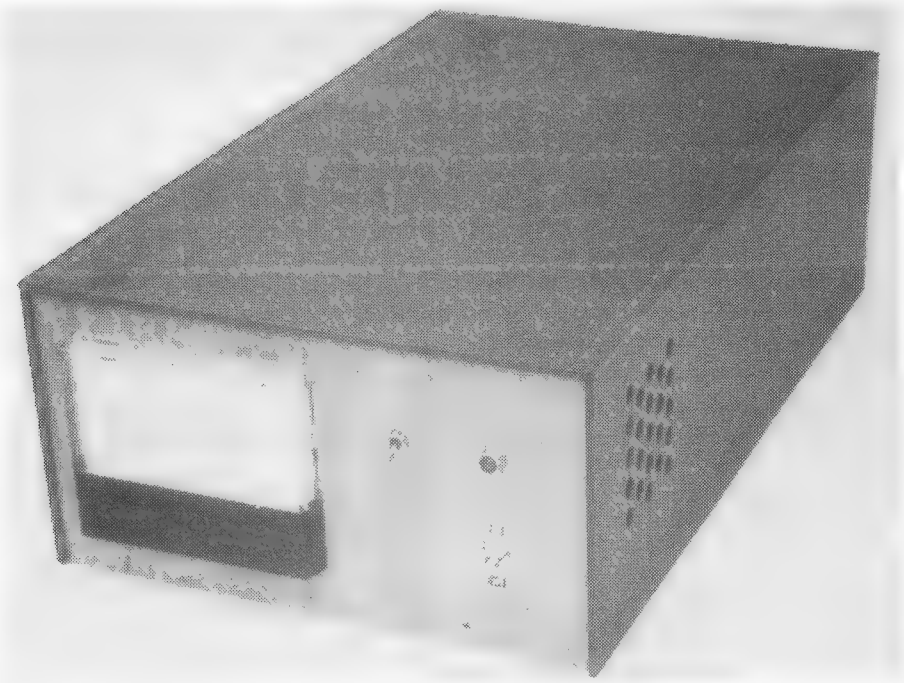


Photo 1. Completed Power Supply

the whole thing together for less than $50 then frankly you don't even qualify for the junior scroungers league.

Moving on to the other points, manufacture is easy as no etched PCB is used. Boards are simply made by using a hacksaw to cut through the copper overlay on the PCB material breaking it up into separate pads. Details are given in the drawings.

Keeping the supply RF proof is another matter entirely. During the development of this supply, several designs were tested based around such chips as the 723 regulator , the 3140 op amp, and a 7912 three terminal regulator with bypass transistors. In all cases, the high gain of the control amplifier forced the use of a PCB with a ground plane to which everything was heavily bypassed.

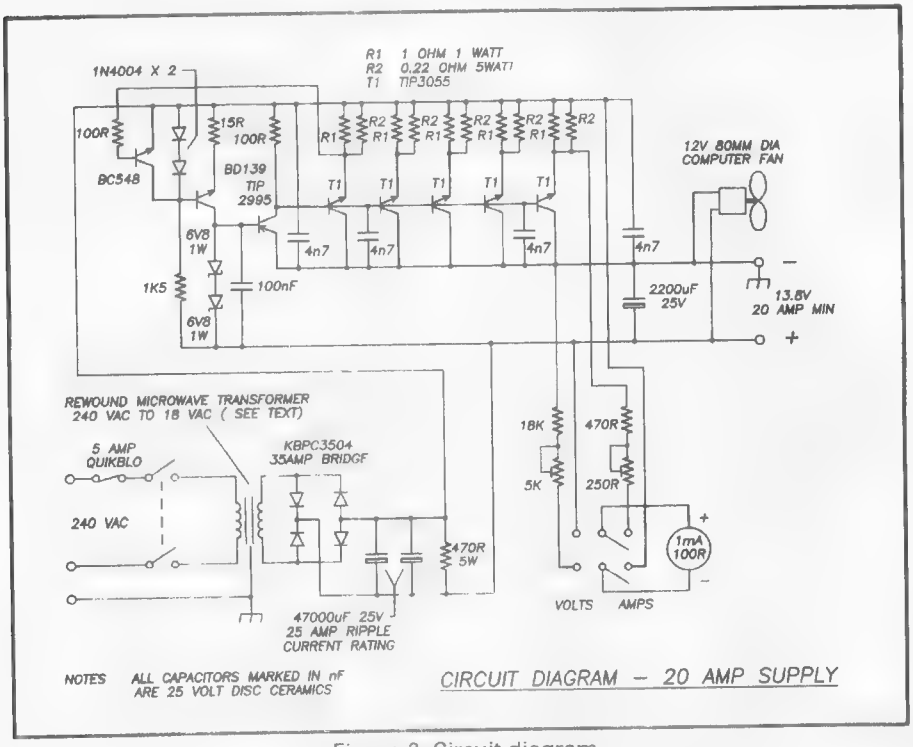


Figure 2. Circuit diagram

This limited RF interference and also prevented motorboating and high frequency instability (a common problem in high current circuits such as power supplies and audio amplifiers) as the ground plane acts as both an RF shield and a single point ground.

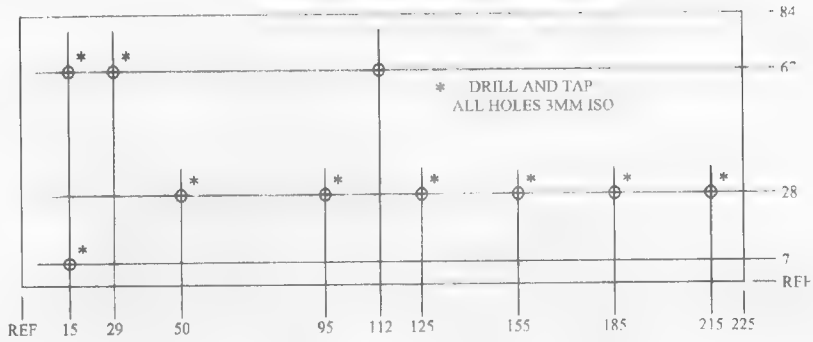
However, for home construction, the use of a double sided PCB is undesirable and anyway, the performance of each of these circuits is totally over the top. After all, 13.8 volt ham rigs are designed for use in a car where the supply voltage wanders all over the place. Two volt of variation is quite typical. Regulator circuits which hold the output voltage constant within a few millivolt for all conditions of load are simply not required. It is much more important that the output voltage is free of noise and ripple, and the published design does this very well. Noise and ripple are well under 5 millivolt peak to peak, and output regulation (no load to full load) is around 200 millivolt. A simple control circuit is used without overall feedback and the result is a cheap, very stable design. RF proofing is provided by physically earthing the heatsink, and also using it as a ground plane. The collectors of the TIP3055's are also physically earthed to the heatsink (no micas), and so a good section of the circuit is actually at earth potential. Two other advantages are easy assembly and excellent heatsinking.

How it works

The first section of the circuit is the transformer, rectifier, filter capacitor and bleed resistor which turns the incoming 240 volt AC into roughly smoothed DC. At first glance,this is a simple circuit and so the operation is rarely discussed anywhere in detail. However, being a very high current supply, this really is a different can of worms and needs to be completely understood, if for no other reason than to prevent rectifiers failing and electrolytics either overheating or exploding. Those of you who are already planning to increase the output current above 20 amps should read the next section very carefully as you won't find it in any common text..

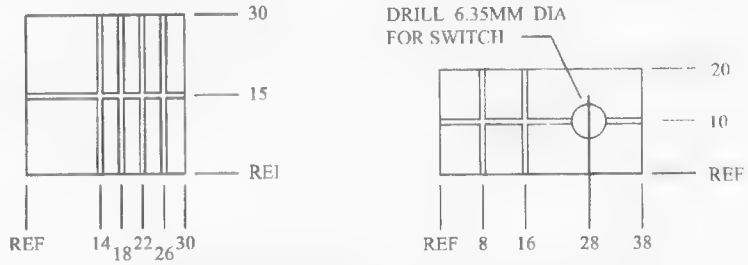
The circuit operates by topping up the charge stored in the electrolytic capacitor every half cycle via the rectifier. Under load, it is desirable that the AC ripple voltage existing across the filter capacitor is kept low and for this

to occur, the recharging must occur in a very short time just before the peak of the cycle. If the ripple allowed is 10%, then very roughly the recharging must occur in around 10% of the cycle. If the average current delivered by the supply is 20 amps, then the average current during the recharging period must be around 200 amps. This huge current peak must be tolerated by both the rectifier and filter capacitor. Another way of looking at this problem is to regard the charging current spike as 20 amps of dc together with a large AC current superimposed on top of it. This AC component flows through the filter capacitor internal loss resistance causing large amounts of heat to be generated. For these reasons, filter capacitors used in high current supplies have three published ratings, capacitance, maximum DC operating voltage and RMS ripple current rating. If reference is made to the famous Schade curves for rectifiers (see references), for the ripple percentages used in this design the relationship between the RMS AC ripple current and DC output current is around 2.5. This means that the filter capacitors used here must have an RMS ripple current rating of at least 50 amps. Capacitors with these sorts of ratings are physically large, to provide the big surface area necessary to get rid of the internally generated heat. I would recommend one computer grade 100,000 microfarad 25 volt aluminium electrolytic around 140mm long by 75mm dia. or 2 @ 47,000 microfarad 25 volt aluminium electrolytics around 105mm long by 75mm dia. Smaller capacitors **must not be used** unless you have specifications which clearly show that they have ripple current ratings at 40 deg. C of at least 50 amps for a single unit or 25 amps for each of 2 units



HEATSINK DETAIL - JAYCAR HEATSINK HH-8530

Figure 3. Heatsink drilling



GENTLY CUT THRU COPPER LAYER ON PCB USING A HACKSAW BLADE TO FORM PAD PATTERNS SHOWN ABOVE

PCB MANUFACTURING DETAILS

Figure 4. Manufacturing details

An even worse situation occurs at switch-on of the supply as the electrolytics are fully discharged and represent a short circuit. If this should happen at the peak of the cycle, enormous peak currents flow and the principal thing which limits the peak current is the winding resistance of the transformer primary and secondary. (It is not surprising that the house lights blink!) The 35 amp bridge used in this design has a single surge rating of 475 amps and in order not to exceed this rating, a particular wire gauge has been selected for the rewinding of the transformer secondary (2.5 square mm). **Under no circumstances** should this be varied.

So much for the operation of the simple part of the circuit. The next bit is the constant current source (BD139) and 6.8 volt zeners. This part of the circuit reduces the ripple existing across the filter capacitors by around 70 db to produce a clean stable reference voltage of 14.5 volt. Current flowing through the 1K5 resistor forward biases the two 1N4004's producing an almost ripple free voltage of 1.4 volt across the base emitter junction and 15 ohm emitter resistor of the BD139. Thus 0.7 volt exists across the 15 ohm resistor, setting the collector current of this transistor to about 50 ma. Most of this current flows through the two zeners, further reducing ripple and producing the 14.5 volt reference potential (and yes the zeners are 6.8volt but this is measured at a test current of 5ma, not the 50ma used here).

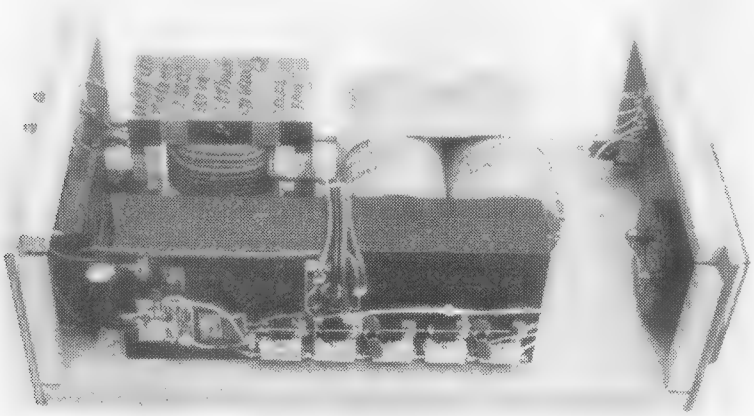
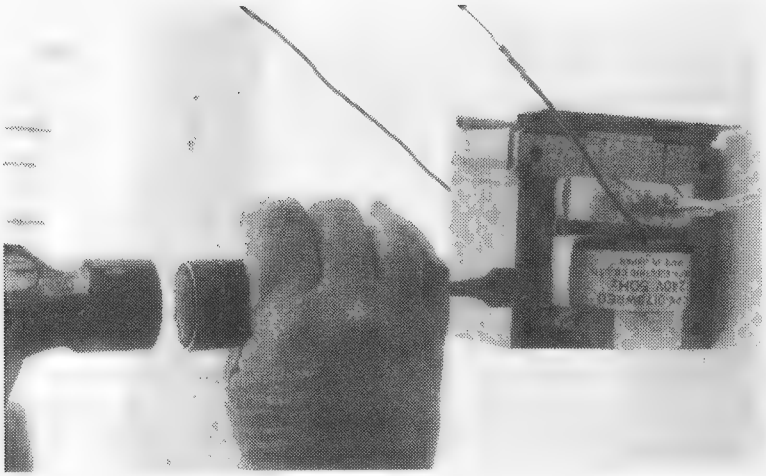
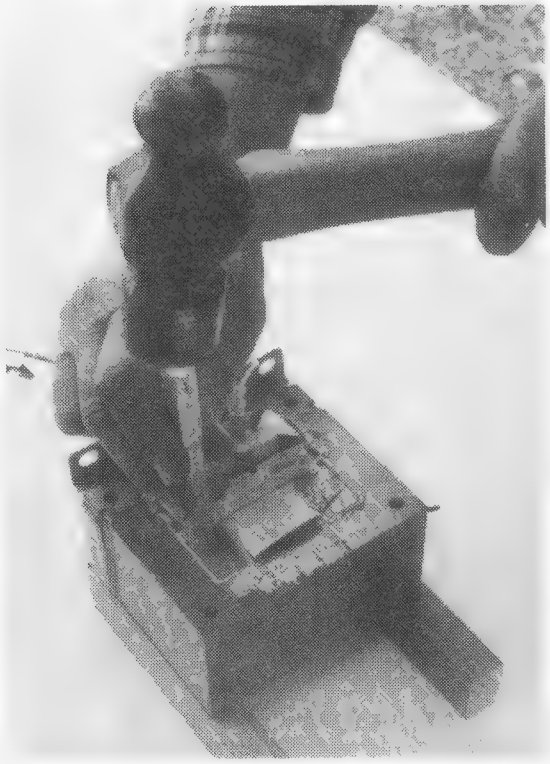


Photo 2. Inside View





Photos 3 and 4. Removing the old secondary

So the power supply output voltage is 13.8volt, due to 0.7volt being lost across the base emitter of the TIP2955.

The last part of the circuit consisting of a TIP2955 and five TIP3055s is really just a big compound emitter follower. At very low output currents (less than 7 ma), the only transistor supplying the output is the TIP2955. This is because there is insufficient voltage existing across the 100 ohm collector resistor to turn on the TIP3055's. However once this limit is exceeded, the TIP3055's progressively turn on, supplying whatever current is required. The five emitter resistor sets of 0.22 and 1 ohm simply ensure that the total output current is equally shared by each of the 3055's. At a current of 4 amps through each 3055, or 20 amps total, 0.7 volt exists across each emitter resistor combination, turning on the BC548 which then starts to shut down the constant current source. This limits the maximum output current to 20 amps. By the way, don't try to cut out any of the 3055's. If you check the specs, you'll discover that the maximum current a 3055 can handle with 20 volt across it (output short-circuit) is 4.5 amps.

Rewinding the transformer

Before you start this job, remember that the transformer is connected to the 240 volt ac mains and that mistakes can be fatal. For this reason, your workmanship must be first class. If you have any doubts about your abilities then either find someone who is qualified to inspect your work and tell you whether it is acceptable, or find a professional who will do the work for you. Remember also that the transformer core must be physically connected to the mains earth, and that the primary must be fused as per the circuit diagram.

I used a transformer from a 750 watt Sharp unit but any transformer from a microwave oven having a larger power output can be used. The smaller units use 1.2 turns/volt meaning that the 18 volt secondary needs 22 turns. The larger units from 1 kW 'nukers' have bigger cores and use 1 turn/volt (18 secondary turns). The problem with most modern microwave transformers is that the cores have been welded together and cannot be dis-assembled for rewinding. Some other method has to be found for quickly removing the secondary winding. Now is the time to don your blue and white striped apron because the best way of doing this is with an old wood chisel and a large hammer (see photographs). As can be seen from the photos the secondary is removed by using the chisel to cut off the protruding C-section of copper on either side of the core. Work parallel to the surface of the laminations at surface level, alternately attacking the winding from either side. Prise off the bits of copper winding you cut through as you go. Be careful not to damage the smaller primary winding. When you have removed the protruding copper on both sides of the core, drive out the remaining plug of lacquer and copper from the lamination window, using a 12mm square punch. Next remove the magnetron filament winding. This will probably be 3 or 4 turns of heavy wire sitting on top of the magnetic shunts . Note the number of turns. Most magnetrons use a 3.3 volt filament and this should give you some clue as to the turns/volt used on your core. Now, using the same square punch, remove the magnetic shunt on both sides of the window. This is a group of small I-shaped laminations which sit directly above the 240 volt primary. Clean up the window removing all loose insulation. Using a sharp Stanley knife, cut a couple of I-shaped pieces of 3mm thick craft wood or 3-ply of exactly the same width as the window. These are placed in the same position as the magnetic shunts just removed and force the primary and secondary windings to be well separated. Use the cardboard from an old manilla folder or heavy masking tape to line the rest of the window, making sure that anything which could damage the insulation on the secondary winding is very well covered . In particular, sharp edges must be turned into smooth radiuses by using lots of tape.

Quickly wind a temporary secondary with 5 turns of any old plastic insulated wire, connect 240 volt to the primary, and measure the AC secondary voltage. Calculate the turns/volt and hence calculate the number of secondary turns you need for the 18 volt winding.

Remove the temporary secondary and wind the real secondary using standard plastic insulated 7 x 0.69mm wire. Make sure that the insulation on the wire you use is rated for continuous operation at 90 degrees Centigrade or more (lower temperature ratings are not available these days anyway). The plastic insulation has an outside diameter of just a fraction under 4mm. Electricians use this wire in either single or 3 core form to wire 20 amp power outlets (white outer sheath). In the old imperial terms it is known as 7 strands of 0.026 inch dia. copper. Another way of referring to this cable is by referring to the copper cross-sectional area that is 2.5 square millimetre. You will need around 6 to 7 metre for the secondary. You can use any wire you like for the secondary, provided the insulation will take high temperatures and the cross sectional area is 2.5 square millimetre. Heavier wire will cause the bridge rectifier to fail because the peak currents will be too high. Smaller diameter wire will simply overheat. However, you will discover that a 7 metre length of single strand wire is very difficult to wind neatly. Wires with 2.5 square millimetre cross section are also available with many more than seven strands , and are very flexible and easy to wind. Wind the secondary neatly in layers, making sure that a minimum gap of 3 millimetre exists between it and any part of the primary winding. It may be necessary to bind some parts of the winding with tape to ensure this. The winding which results will deliver 18volt no load or about 15 volt at full load.

An aid to neatly winding the secondary is to cut some more bits of 3mm ply to exactly fit the height of the window. These can be used to force the turns to sit flat through the window as you wind each layer.

Assembling the supply

The first thing to do is gather all your bits together and design and make your box. Remember that a fan is mandatory (you can get a good quiet one from an old computer power supply) because the iron in a microwave transformer is flogged to death to keep both costs and weight to a minimum. Unventilated, they get very hot after about 30 minutes.

I made my case using 19mm chipboard for the base, 5mm thick 3-ply for the front and rear panel, and 3mm masonite for the lid top and sides. The front and rear panels of the case were drilled to accommodate switches, meters, fuse holders, etc. Then 12mm square timber was nailed and glued around everything but the bottom edge of these panels to provide a timber frame for the lid retaining screws . The completed panels were then nailed and glued to the base. The lid of the box was assembled using 12mm square timber at the junction of each of the panels. Everything was both nailed and glued for strength. A pattern of air holes was included at the front of both of the lid side panels to ensure that good ventilation was obtained.

All of the components on the heatsink were then assembled (see diagram) . Finally, all components (case bottom, heatsink, transformer, electros, front and rear panel bits, etc. etc.,) were married together to produce a unit ready for final wiring and testing.

Wiring and testing the brute

Simple enough really- use the left over 7 X 0.69mm wire for all the high current wiring (see the heatsink diagram) and thin plastic covered multi strand wire for all the rest. Wire up the transformer, rectifier, filter cap. and bleed resistor first and test the assembly. Watch your rectifier and electrolytic capacitor polarities like a hawk. If things go wrong, they will do so in a big way. Next, complete the voltage reference circuitry and test that (14.5 volt across the zeners). Last, add the super emitter follower and test the completed supply. A 60 watt headlamp bulb makes an excellent load. Testing the current limit is not easy and involves laying your hands on a 0.5 ohm 300 watt resistor. Do not just short the supply terminals and hope. If the current limit does not work the damage will be awesome. With the 0.5 ohm in circuit, 27 amp will flow if the limit is not working and the output voltage will be 13.8 volt. If the current limit is working, the terminal voltage will be around 10 volt and the current around 21 amp.

Continued on page 17

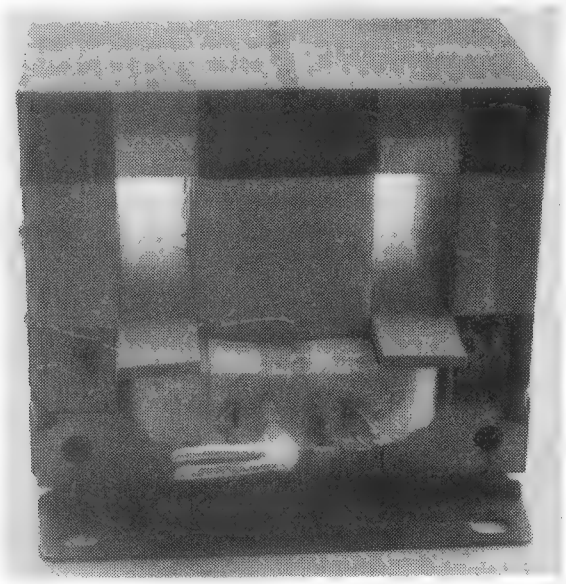


Photo 6. The core ready for rewinding

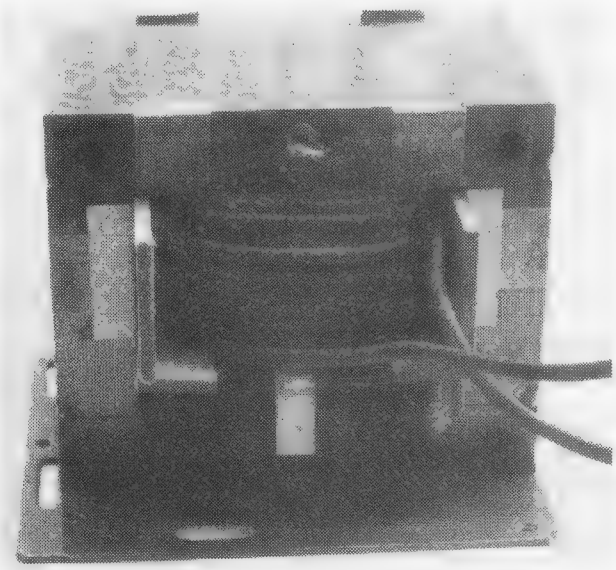


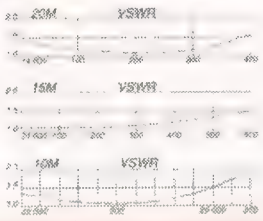
Photo 7. The completed rewind

G. & C. COMMUNICATIONS

Authorised dealer for ✔Kenwood ✔Icom ✔Barrett RFDS ✔GME Electrophone ✔Uniden ✔RF Industries

TE-33 3 element tri-band yagi antenna

The most popular tribander. Storm proved in the Pacific islands. Excellent performance. wide band-width, high gain, low SWR, high F/B ratio. Marine grade S/S h/ware. 6063T83 aluminium tube and specially machined heavy duty aluminium brackets.



World famous names in

HF and VHF Amateur Transceivers

27 Mhz and UHF CB Radios

FULL RANGE OF EMTRON HF ANTENNAS

HF and UHF LINEAR AMPLIFIERS

We're aiming to serve you better. Big news next month

Australia-wide orders welcome. Payment by credit card, cheque or money order

19 Arleon Crescent Cranbourne 3977
Ph: 03 5996 3298 Fax: 03 5995 0184

Email: gccomm@netspace.net.au
www.netspace.net.au/~gccomm

Order your Callbook and CD through your Division now

WIA 2003 Callbook

Book and CD pack

Get pricing and delivery details from your Division

VK1 Division
Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Hours Tue, Thurs, Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

VK3 Division Victoria
40G Victory Bvd Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

VK4 Division Queensland
PO Box 199, Wavell Hts, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

Easy read

Bold calls

VK3CGE	NG Emeny 1 Beaumont Crt MONTROSE VIC 3765
VK3CGM	GB Manders 8/33 St Georges Rd ELSTERNWICK VIC 3185
VK3CGP	GW Potter 4 Omeo Crt TAWONGA SOUTH VIC 3698
VK3CGR	Paul Timothy McMahon Lot 2 Stratford Rd MAFFRA VIC 3860
VK3CGT	GT Garde 46 Douglas
VK3CGU	HJ Bassi Lot 80

All calls and technical information *completely searchable* on the CD by any parameter. Seven times faster than Internet

VK5 Division
South Aust. & Northern Terr.
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@iinet.net.au*

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
http://www.tased.edu.au/tasonline/vk7wia
also through *http://www.wia.org.au/vk7*
email: *batesjw@netspace.net.au*

Continued from page 15

Briefly connect the 0.5 ohm and see what happens. Do not leave the output shorted for minutes. The heatsink size and power supply design have been optimized for SSB operation (regular peaks to 20amps NOT the continuous drain of 20 amps which happens in FM and AM operation). I made my 0.5 ohm resistor from nichrome wire reclaimed from an old bar radiator and immersed it in a bucket of water. Steel wire of around 1mm dia obtainable from your local hardware shop for picture hanging could also probably be pressed into service but I haven't tried it.

Adding more muscle

The supply can be relatively easily extended in capacity - here are the steps. First, throw away the mickey mouse 35 amp bridge (which is really flat out supplying 20 amps into a capacitive load) and replace it with some heavy stud mounted diodes, e.g. BYX52s or similar which have peak forward current ratings of 800 amps or more. These will need to be mounted on a decent sized heatsink. Use a transformer from a 1kW microwave and rewind the secondary using heavy multistrand wire with an area of around 4 to 6mm square (see your auto electrician). Add filter capacitors as necessary to get the appropriate capacitance (50,000uF per 10 amps) and ripple current rating (25 amps of ripple current rating at 40 degrees C for every 10 amp of DC output). Add TIP3055s at the rate of one 3055 for every 4 amp additional output. Drop the 15 ohm emitter resistor in the constant current source to 12 ohm (30 amp) or 10 ohm (35 amp). Beef up the heatsinks to suit your application.

Have fun and try not to liberate the magic smoke which makes all electronics work

References

Schade Curves Radiotron Designers Handbook, Fourth Edition 1952 pp 1171-1182

National Semiconductor Voltage Regulator Handbook

Electrolytic Data Rifa Capacitor Handbook 1992

Philips Components Handbooks - various

Radio Spares Catalogue 1998

Sprague Capacitor Leaflets 1987

Bridge Rectifier Data International Rectifier Home Page for GBPC 3504 or http://www.irf.com

KBPC 3504 TIP3055,TIP2955, Motorola Semiconductor Data

MJE3055, MJE2955 Texas Instruments Semiconductor Data

The RS20 Power Supply *Cautionary Note*

The use of rewound transformers from recycled household equipment occurs quite often these days. There are aspects of transformers however which need particular attention from those who have never fried one or have forgotten what did fry it. Anyone who has operared a radiator on a coiled up extension cord and fused the cord into a solid mass on the reel knows that every thing that conducts electricity has resistance and so heat is generated in use. There are therefore restrictions on the use of specific types of wire. There are limitations depending on the wire gauge, the insulation and the environment in which it is used.

The following are the reviewer's comments re the wire suggested for rewinding the transformer in ths article.

"Many amateur constructors may be prone to take liberties when interpreting a design to fit what they have available.

The major problem in this case is the rating of the wire used in rewinding the transformer. In the wire tables in ARRL and RSGB publications the rating of enameled copper wire with the same cross section is given as 7.4 amp. This is less than 40% of the DC output current even without further derating due to the insulation type and maximum operating temperature allowable and the higher rating required due to supplying the load via a rectifier and a capacitor input filter.

In order to get a sufficient wire size multiple parallel wires could be used. This may exceed the transformer window area. A bundle of parallel enameled wire, with a suitable combined rating as per the tables given in the amateur handbooks, may be a way out.

The peak current rating of the rectifier could be addressed by using one with a higher peak rating or by limiting peak current by some means such as a limiting resistor."

Note re-Power Transistors

"Note that the 3055 transistors come in several different packages and they are not interchangable in high power circuits. The TIP3055s used in the prototype will work, any substitution should be selected with care. Many amateurs use the most available or cheapest available types and this may present a problem if some generic types are used."

Cover story

VHF reflectors in plane view

Barry Miller VK3BJM

Barry VK3BJM explores the ups and downs of chasing planes and fulfills two passions

Barry VK3BJM, morning 21/4/02, Waukaringa PF97RR

I have a number of passions in life, and high on the list are camping and amateur radio – particularly the VHF, UHF and SHF bands. It's true that I often combine the two. Whilst out on previous excursions, I've become interested in how much Aircraft Enhanced Propagation (AEP) can offer the portable VHF/UHF operator. This may be due to a "law" which states quite clearly that during a planned portable operation, Tropospheric Enhancement shall vanish completely.

So, 'Necessity being the Mother of Invention', I started asking questions of those who knew about AEP, and collecting maps and flight information. My goal was to assemble a map of southeast Australia, onto which I could transfer promising flight paths. From this, I could plan trips to out-of-the-way places, from which to work back into Melbourne, or anywhere else that had established VHF/UHF stations.

Contacts using AEP occur regularly over 700 km paths. It has been suggested that a particularly favourable (read large and high!) aircraft may provide propagation out to 900 km – absolute tops. I am interested in this area between 700 and 900 km. I purchased some aeronautical charts (Scale 1:1,000,000) and, using tape, assembled them into a single map. The northwest corner of the map is at Lat. 28 S, Long. 138 E; and covers all of mainland Australia south to Adelaide, and east to the Gold Coast.

Go Northwest, Young Man!

I like travelling into South Australia – the Flinders Ranges is favourite area of mine – and the first flight paths I marked out were the international paths from Melbourne to Asia. One in particular caught my eye. It is an outbound route from Melbourne, called H164. If you were to draw a straight line from Melbourne Airport to Leigh Creek South, SA, then you would just about have this route plotted. Leigh Creek is about 900 km from Melbourne.

I have a friend, Dave, who lives not far from this route, in Maldon, Victoria. He suggested that, from visual observation, it was a busy route. I needed little more encouragement! Dave also enjoys going bush, and required little encouragement, either.

We agreed to travel up to a spot just

north of Ouyen for the first night. The next day, in order to try something a bit different, we would continue on through Mildura before heading west across towards Lake Victoria, then north through the Danggali Conservation Park to Yunta. We would then whiz up the Barrier Highway towards Manna Hill – which happens to be under the H164 route. Day 3 would see us go back towards Yunta, then northwest to the old Waukaringa Goldfield. Day 4 would be a long drive back to Maldon, going via Broken Hill.

Our portable station:

As we were going to attempt contacts over a sizable distance, I chose to take a sizable antenna array. On 2 m, this consisted of a pair of 10-element, DL6WU-design yagi. These would be "stacked", with a three-metre spacing, hopefully to give us in the order of 14 dBd gain. There was also a 15-element, DL6WU-design yagi for 70cm, to go on the six-metre mast. These would all be connected to an Icom IC-706 MkIIG, with power amplifiers providing 160 watts on 2 m, and 100 W on 70 cm. I planned to use a "RAJE Electronics" PIC-based CW keyer, to save my larynx.

There was also an Icom IC-729, to provide HF liaison on 40 or 80 m, connected to a wire vertical supported by a "Squid-pole" – a 7-metre, telescoping, fibreglass tube.

Day 1:

Mathematically, the number of possible delays in leaving on schedule is the square of the number of trip participants. We left Maldon at 0630Z Thursday afternoon (18/5/2002), a few hours behind schedule. Arriving at Wedderburn gave us an opportunity to meet Des VK3CY, for the first time, and for Des to see the horizontally polarised mobile antenna that I use for 2 m – known as a "Big Wheel" or "Cloverleaf". This was an opportunity too good to miss for all concerned. We moved on a bit after 0700Z.

Having had an example of haute cuisine, Sea Lake style - a warning shout of "Don't mind the noise", as the box of frozen meat patties was dropped on the concrete floor to break them up —an example of the banter that should earn the chef his own TV cooking show — we motored on until we arrived at Hattah at 1045Z. It was too dark to find the track out to the Hattah trig point, which seemed to be the only spot acknowledged as a hill on our map. We decided to set-up camp, just outside the boundary of the National Park. I found that I had a problem with the mast, which required attention in daylight. That meant we could only erect one 2 m yagi. We worked VK3CY on the "Big Wheel", and Des relayed the mast situation to others whilst we put the yagi up. We then worked VK3XPD, VK3KEG, VK3FMD, VK3II, VK3BDL, VK5DK, VK3ZQB, and VK3XDQ.

The location proved very interesting for observing aircraft. Dave spotted the first whilst we set up the yagi. A contrail lit by moonlight against a clear sky is a surprisingly beautiful thing. We saw three planes from Sydney bound for Adelaide, one outbound from Melbourne on the path to Leigh Creek, and two Melbourne-bound from Adelaide. We experimented with the last two we saw, using the Adelaide and Mt Gambier beacons. The beacons were both only 4x1 via troppo.

Waukaringa is located 349 km to the NNW of Yunta (PF97rr), and is a goldfield ghost town. We spent about three hours exploring the area, and half an hour cutting rusty wire from around the transmission shaft. I found a large quantity of angular iron pyrites during this exercise – mostly imbedded in my back and shoulders.

The first experiment involved a Sydney>Adelaide flight. The flight path was almost, but not quite parallel with our beam heading to Adelaide. We peaked the beam on VK5VF (320 km away), and noted the signal as the plane strayed into the pattern of the yagi. These figures are only approximate, but at about 20 degrees from the beam heading, fast flutter appeared. The flutter reduced to a slow beat as the plane neared the horizon, and then stopped leaving a signal nearer to 5x1.

The second was with an Adelaide>Melbourne flight. This time the flight path was perpendicular to our beam heading to VK5RSE (347 km to the south). Again fast flutter appeared as the plane cut the beam heading - at the peak, the RS got to 5x6. The pass was obviously shorter, due to the angle between flight path and beam heading.

Being able to see the plane, thanks to the navigation lights, as it caused these effects seemed pretty nifty.

Day 2:

We were up not long after the sun rose, and commenced proceedings with a freshly brewed plunger coffee. Little luxuries are so important! I put out a call on 2 m, and worked VK3GOM, VK3AEF, VK3CY, VK3II, VK3AXH, VK3FIQ, and VK3KQB. All RS reports were up on the previous night. I called Gordon, VK2ZAB, on the mobile phone, and ran a CW keyer from 2305Z to 2340Z with the yagi pointed to Sydney. I believe nothing was heard. We were packed up and on the road a bit after 0001Z.

We had a late breakfast and refuelled the vehicle at Mildura. Then we left the comfort of the GSM network (HA!) and headed west to Lake Victoria, then north through the Danggali Conservation Park. The last mobile contacts we had on 2 m were with VK3AEF and VK3CY, from near the Darling River Ana Branch at QF05vw. The unsealed road is fair, and the drive through this region was enjoyable, but we will probably use the bitumen more next time. We arrived at Yunta at 0630Z, and headed for Manna Hill. As luck would have it, we were unable to locate a suitable spot in the area I really wanted. The sun was starting to set, so we decided on a ridge adjacent to a Telstra installation 15 km back towards Yunta, called Mt Edwards, PF97vm.

Of course, the Telstra installation had a paging (or similar) device on 148.810 MHz. It was blarping every 30 seconds and causing a degree of de-sense to the 2 m receiver, despite being half a kilometre from our position. Coinciding with our arrival, a Boeing 747 passed overhead, heading NW. It was the last plane we saw that night.

We made the modification to the mast, and erected the 2 m yagi array, and the single 70 cm yagi - in the dark! We checked and heard beacons from Adelaide, Mt Gambier, and Mildura –

but none were terribly strong. I cooked up the pasta and the Bolognese sauce, and we ate with gusto. Unfortunately, I forgot to open the bottle of Cabernet Merlot that I'd carefully packed to go with the meal.

There were a few stations on the liaison frequency on 80 m, and we discussed the pros and cons of 2 m vs 70 cm propagation. It was suggested that we run the keyer on 70 cm towards Melbourne for a number of hours, and we did. Sadly, Chas VK3BRZ heard nothing at Lara, though Charlie VK3FMD, in Malvern East, reported having heard one burst including the "K" at the end of a transmission. Eventually we gave up. Steve VK5RU/VK5ZBK then called us on 80 m, from St Agnes (about 15 km NE of Adelaide). A contact on 2 m followed, and while signals were not huge, it was a comfortable QSO.

Day 3:

On Saturday morning we ran the keyer again on 2 m until 2300Z, but without success. We packed up, and headed to Yunta. There we had a late breakfast, and a shower at the Yunta Roadhouse. Just before midday, we headed out the road to Waukaringa.

Waukaringa is located 349 km to the NNW of Yunta (PF97rr), and is a goldfield ghost town. We spent about three hours exploring the area, and half an hour cutting rusty wire from around the transmission shaft. I found a large quantity of angular iron pyrites during this exercise – mostly imbedded in my back and shoulders.

There is a ridge overlooking the field, and it was on this ridge that we decided to set-up camp. At about 0530Z, we were told to move from 7070 kHz, as the frequency would be in use for 24 hours as part of a WICEN exercise. We shifted to 7080 – and wondered how many stations would not be able to find us.

During the set-up, the squid pole suffered a mechanical failure on being raised - the wall collapsed on the lowest section. We overcame this by running a 1.8 m length of galvanised pipe (that I just happened to have lying about the car) up the centre of the squid pole. We decided to only put up a single 2 m yagi, and the 70 cm yagi - wimps, yes. While it was still light, I cooked the pork curry, and we ate as the sun set.

We ran the keyer on 2 m towards Melbourne. At 1107Z, Jim VK3AEF at Nhill reported the keyer was audible. I went to voice, and a contact was completed - 5x1 each way over the 500 km path. Much whooping ensued.

Charlie VK3FMD arrived on 80 m a little later, with a little info on QANTAS flights leaving Melbourne. We could see planes on the flight-path regularly this time - we counted six for the night. Charlie advised there was a flight to Kuala Lumpur leaving at 1245Z (2245EST). We were guessing that it would reach the mid-point about 45 minutes later. Sadly, Charlie heard nothing during a 15-minute window either side of 1330Z, though 5 meteor pings were noted. During this time, I noted a station calling me. At 1347Z, I swung the yagi towards Adelaide, and again worked Steve VK5ZBK. Signals were much stronger this night (5x6), with less QSB.

Incidentally, the next plane we saw went past at 1451Z - if it was "our" plane (the Kuala Lumpur flight), then perhaps the midpoint is 1 hour into the flight... We wondered – did we give up too soon?

Day 4:

Again, nothing was heard on Sunday morning. We were packed up and mobile at 0020Z. We then drove for a bit over 11 hours, reaching Maldon at 1245Z on Sunday night. We broke the trip by a few stops, including one at the Thackaringa Microwave Repeater station where I was able to access the GSM network (Broken Hill cell) for the first time since leaving Mildura. I confess I find it astounding that there is no GSM (or CDMA) network along the Barrier Highway between Hallett and Broken Hill, considering the number of microwave repeater sites and vehicle traffic along the highway.

The wash-up:

Both Dave and I had a great time. Working Jim from Waukaringa, and Steve from both locations, meant the trip was worthwhile. We didn't succeed in working into Melbourne, but I haven't given up hope. I need to do more research on the scheduling of flights, and time taken to reach midpoints. And there may still be improvements I can make to the portable station, to increase our chances of success. Erecting stacked 2 m yagi arrays is a job best handled by 2 people. Fortunately, I don't think I will have any trouble getting Dave to go on another trip like this. But whether the distance between the bottom yagi and the ground is sufficient to allow the array to work as well as it should, and therefore make the whole assembly worthwhile, is open to debate.

The only downer to the trip was the loss of my 14-year old Akubra hat, somewhere around Waukaringa, we think. So if anyone should be near Waukaringa and happen upon it, or spot a wedge-tailed eagle with the brim pulled low over the beak, please let me know.

Silent Key

John Thornthwaite VK2ATO

It is my sad duty to record the passing of John Thornthwaite VK2ATO. John passed away, suddenly, at Milton Hospital on 14th October 2002.

First licenced in early 1950s, John was, at that time, employed by AWA in its Maritime Division at Leichhart. He and his brother VK2AZO (also a Silent Key) were very active on VHF in the 50s and 60s in the Sydney area. John was also a very keen bushwalker and often combined this activity with VHF portable/mobile operation.

When he retired in 1978, John moved to Lake Conjola where he became an active member and office-bearer of the Mid South Coast Club. He was one of the famous "two Johns" team who carried out duties of repeater officers for this club for nearly 20 years. Under his care, our repeaters at VK2RMU established an exceptional record of reliability. John was also a long-term member of the NSW Division of the WIA.

John was a quiet, gentle man who will be missed by all of the members of the Mid South Coast Club and by his friends outside the amateur ranks.

Vale John.

Stan VK2EL, Hon Sec.,
Mid South Coast Amateur Radio Club Inc.

Journey Round my Uncle:

VK4HH Norman Hurll

N J Hurll
166 Keppel Lodge
Rosemary Bay Village
Bayview Street
Rosemary Bay 4216

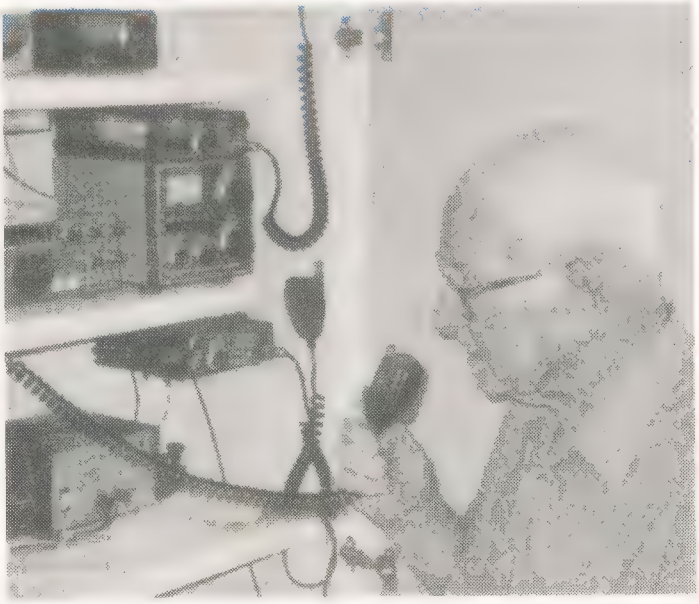
During a recent visit to my uncle, Norman Hurll, the issue of your oldest active operator arose. Norman's story was of great interest to me and is repeated here for your information.

His first registration was in the form of a temporary permit issued by the Admiral in charge of the Navy at Garden Island, Sydney in 1919. Shortly afterwards, the Navy handed administration of all radios to the Post Master General's department who issued Norman's first licence 2BC. Between the wars Norman moved to Queensland to farm bananas at Burleigh. He gave up his NSW licence and obtained a Queensland registration. Returning to Sydney after four years he reacquired his NSW licence. This together with all amateur licences was cancelled with the outbreak of WWII and equipment impounded.

He joined up and became an Army Signals officer serving in Sydney and Darwin. With the end of WWII Norman's equipment was returned but it was some years before he became active again.

He returned to active ranks operating from his home in Strathfield and later Killara. Retiring to Rosemary Bay in Queensland in the 1980s, he transferred his call to VK4HH. Having just turned 97 he is not as active as previously but extends his best wishes to all amateur radio operators.

ar



Cable and Connectors

Belden

- RG58C/U Belden 8259 @ $0.90 per metre
- RG213/U Belden 8267 @ $4.45 per metre
- RG8/U Belden 9913 Low Loss @ $5.15 per metre
- RG8/U Belden 9913F7 High Flex Low Loss @ $5.55 per metre
- RG8/U - RF400 Belden 7810 Low Loss Sweep Tested to 6000MHz @ $6.30 per metre

LINK

- RG58: B80-006 UHF connector (M) @ $7.65 each
- RG8/213: B80-001 UHF connector (M) @ $8.80 each
- RG213: B30-001 N connector (M) @ $9.10 each
- RG8: B30-041 N connector(M) @ $14.00 each

connektron Pty Ltd

ABN 19 413 484 007

email sales@connektron.com.au or Phone (03) 9761-5220

connektron Pty Ltd, 45 - 49 Merrindale Drive, Croydon South, Victoria 3036

www.connektron.com.au

* All prices include GST
* Minimum order value $50 payable by Visa, Mastercard, Bankcard or Money Order
* Packing and Delivery $15 within Australia (Outside Australia P.O.A.)

ALARA

Christine Taylor VK5CTY
vk5cty@vk5tty or geencee@picknowl.com.au

Apart from the ALARAMEET

The Dxpedition to Lord Howe Island and to the Cook Islands was very successful. The girls joined in the 222 Nets each week to pass on the latest excitement and to give YL around the world another chance to make a contact.

If you were lucky enough to talk to anyone do make sure you send your QSL cards to Gwen so you can get one of the special cards in return. Keep her busy!

The Contest Logs

I hope you sent these logs in because you will be too late by the time this magazine comes out.

You will still be able to apply for an ALARA Award, though. So check your log to see if it gave you the extra state callsigns you needed. Ten contacts from at least 5 VK states is all it takes to be eligible for a very attractive award to hang on the wall.

An item of general interest

We all know about the tiny radio transmitters used to track animals in the wild because we see the amazing results of such tracking on our TVs quite often but a couple of new applications of the same techniques have been implemented recently by an Australian company.

Something like 8000 upmarket cars, such as Porsches are now fitted with transponders made by Quicktrak. A number of specialist car thieves have been caught in the act by these devices.

That is not an unexpected use for a transponder but for them to be used in vending machines is surprising. No, the vending machines are not being stolen; instead the transponders can send to the drinks makers information warnings when the vending machine needs refilling. Apparently the cost of the transponder is insignificant compared with the cost of unnecessary journeys to fill machines that do not need filling.

This is an example of some lateral thinking.

Travellers

On their way to Murray Bridge Poppy VK6YF and Bev VK6DE visited Kangaroo Island and had a cruise on a paddle steamer (the tour of Kangaroo Island had been rather hectic so they were pleased to have a peaceful time to recuperate). They met up with Agnes VK2AGWI and OM Henk on the boat and all had a great time, enjoying the passing scenery and the company. One of the highlights was the entertainment night at Nildottie where the local history was described in song and with a light show and 'real' sheep shearing was demonstrated. All of this under the stars made it a memorable night.

For Raija SMØHNV her visit to the Maritime Museum at Port Adelaide (she had been part of the Dxpedition on Lord Howe Island and had visited friends in Brisbane before coming to Adelaide and Murray Bridge) was a mixed one. The exhibition was based on the ship "Vasar". This ship had sunk in Stockholm harbour on its maiden voyage where it lay for over 500 years before it was floated and preserved. It is now touring the world as an exhibition instead of as the warship it was planned to be. Of course as Raija comes from Stockholm it was a case of "coals to Newcastle", however I am told that the "Vasar" was only part of the whole Maritime Museum display so there was plenty that was new to see as well.

Pat VK3OZ and OM Peter spent a week at Nelson on the Glenelg River on their way to Murray Bridge, contacting Mary VK5AMD on 2-metres and participating in the 222 Net on 20 metres, while Val VK4VR and OM Brian visited Marilyn VK3DMS and Geoff before following them to Murray Bridge.

The ALARAMEET at Murray Bridge

Almost as many people were at the 'informal' Friday evening meal as were at the actual MEET because it was not easy to be at the Community Centre by 9.00am if you had to come from Adelaide - though Sue and OM Steve VK5AIM did just that each day. They were very keen!

It was marvellous to see again all our 'old' friends and to meet all the new ones. There were lots of hugs all round. Well if we all need eight hugs a day for good health, as we are told, we have much good health stored up from the ALARAMEET. Everyone was especially delighted to see Bev VK4NBC and Judy VK3AGC arrive at the dinner on Friday night. Judy had been awaiting the birth of a grandchild (due on 27th Sept) to decide whether or not she would be able to come to the MEET and Bev was staying with her while she recovered from a very bad bruising, so there was considerable uncertainty about their attendance.

There were 27 VK YLs, 10 ZL YLs and 2 DX YLs. With OMs there were 60 attendees with several who deserve special mention. Murray, OM of Mary VK5AMD, Les, OM of Lorraine VK5LM and Libby XYL of Steve ZL2UCX attended the whole MEET but are not amateurs themselves– and survived. Rob VK5RG attended without his XYL who had a family christening in VK4. Trevor VK5ATQ, President of the VK5 Division, along with Hans VK5XY and XYL Leslie came to the dinner to represent the rest of the VK5 amateurs.

Norma VK2YL and Frank VK2AKG brought their three beautiful daughters, Christine, Michelle and Lorraine, along - very brave of Mum and Dad and of the girls. They said they enjoyed all the activities. To cap off the visitors, Bev's

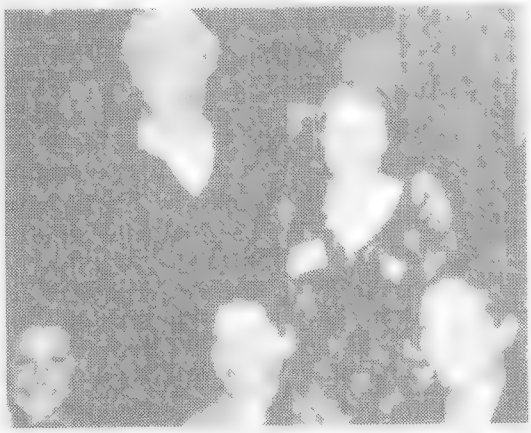
two "kids" were introduced to the group. They also feature in the photos.

Registration was computerised and worked well (with computers you can never be sure) so that we were ready for the photograph session on time. That also ran like clockwork - perhaps we are used to having our photos taken at these MEETS now - so that we had plenty of time to have the photos developed and copied so that everyone took home a record of the group. We were all rather flash-burned in the eyes at the end, but it was fun.

After a light lunch that could be eaten out on the balcony of the Community Centre overlooking the river if we wished, we embarked on the Captain Proud (a real paddle boat) for a pleasant cruise up to where we could see the house that belongs to Meg VK5YG and OM David, and down as far as Long Island with lots of people in holiday shacks and houseboats to wave to while enjoying scones and cream. The YLs and a few privileged OMs actually saw one of the paddles turning through a window in the powder room!

Everyone agreed that the meal at the Racecourse was very good indeed where we were pleased to welcome Hans VK5YX and his XYL Leslie, and Rob VK5RG to join us. Both of these OMs are known to many of the Travellers Net users and hence to many of the VK attendees. Unfortunately just before the end of the evening Bev VK4NBC began to feel unwell. By next morning Judy VK3AGC was also ill so after all the effort to get to the ALARAMEET they had to miss the rest of the fun. The verdict was "Pokey Poison". Bev and Judy were the only people to play the pokies at the Community Centre that morning!!. Of course, it was probably something they picked up on their rushed trip from Taradale, as no one else was ill, but the verdict stands!

We gathered at the Centre early next morning and boarded a bus in time to be at Monarto Open Range Zoo when the gates opened at 10.00. This was a first for most of us and a very interesting tour. Because we were early we had numbers of animals that came close to the bus.



Later in the day this does not always happen. Lots of photo opportunities!

We had lunch at the Bridgeport Hotel and a trip out to "Old Tailem Town" for a chance to wander around the old buildings there after an introductory demonstration of the old "Talking Machine". Tailem Town has one of the best gramophone collection in the country all gathered by a man who, at his request, has a memorial headstone just outside the building. Many "I remember that"s and "Grandma had one of those" were heard. The very old, reproduction houses were of special interest, showing the way in which early settlers in VK built their own houses. The OMs were sorry that the best engine display was closed, but they could at least look though the windows of that building

On the Saturday a special presentation was made to Pat VK3OZ . She has won the Florence McKenzie Trophy in the ALARA Contest for the last two years, and we are told, probably for this year as well. It was great to be able to actually present the trophy instead of just a photograph of it. Congratulations Pat.

An ALARA Special Award was given to Bev in appreciation of all she has done for ALARA over the years and particularly for the way she was able to plan and run the Briasbane MEET under very difficult conditions. Thanks Bev.

On Sunday Norma , now VK2YL, was asked to cut a cake made by Jean VK5TSX, the organiser of this very successful MEET. The cake was followed by the drawing of the Special Effort prizes (there were many more items than had been planned by the VK5s because a number of YLs brought along lovely gifts to add to the table). Many people went home with craft and gift items they will treasure for years. Then we had the 'Mars Bar Awards" which you have to attend an ALARAMEET to know about,

A vote was taken to decide the venue for the next ALARAMEET as both Alice Springs and Mildura had been suggested. We will be going to Mildura in three years time. Hope to see you there!

http://www.wia.org.au

check out the WIA webpage today!

Australian Made
ANTENNAS
"Setting a New Standard"
COM-AN-TENA
(Formerly a j and j coman)
6 Muir Court
CHELSEA HEIGHTS 3196

All new 5/8 vertical 16 radials	$145
Dual drive 26-30 5 ele yagi beam	$305
4 ele 10-11m yagi beam	$262
5-6-&7 ele high gain antennas 11m	$call
3 ele delta loop 10-11m	$320
11m 5/8 vertical/4-1/4 wave radials	$170
Duoband 10-15 3 ele each band	$356
Log-periodic 7 ele 13-30 MHz 7.7m boom	$890
Tri-band 5 ele HB35C s/steel fix	$730
3 ele 20m computer opt	$390
3 ele 15m computer opt	$285
M B Vert Auto switch 10-80m	$310
40m linear loaded 2 ele beam	$580
6m 5 ele compt opt beam	$259
6m 7 ele compt opt beam	$355
10 ele high performance 2m	$135
17 ele high performance 70cm	$119
2m vert 2-5/8 co-linear 4 rad	$ 96

Guyed Masts
21 metres 13 metres
Winch-up & tilt-over. Aluminium and stainless steel three-sided construction. Auto-brake winches
Free Standing Masts
9.5 metres
New Baluns
1-1 to 16-1 to 3kW
Our Masts
meet Australian Standards.
We supply all the computations and data you will need for a permit.
03 9773 3271
Mob: 0419 542 437
Andy VK3IV

Club Notes

Adelaide Hills Amateur Radio Society

The coming of the digital box

The talk given by John VK5EV was extremely interesting. He gave us a demonstration on digital television compared to the analogue version with which we are all so familiar. Especially in areas where the signal strength is low or where normal TV suffers from ghosting, digital is vastly superior. In areas where there are no signal problems the advantages are the increased number of channels available and the general high quality picture.

Whether Australians will buy sufficient digital TVs or converter boxes before the changeover date is a moot point. The situation is much the same as the US and the UK experienced. People are reluctant to lay out a great deal of money without being sure there is sufficient difference to warrant the expense.

Aside from the visual demonstration John had many interesting tales to tell about the technical problems involved in the changeover of the antennas and the transmitters.

Perhaps the most surprising aspect was that, for this enterprise, one company, John's employer, was responsible for the change from analogue to digital television for all three commercial stations in VK5. They were also involved in changing the antennas for the ABC and SBS but the transmitter change was handled by the ABC's own technical staff.

Totally different antennas are required for digital television even though, in Australia, we are using VHF frequencies. The rest of the world has gone to UHF for digital TV. The old antennas had to be removed, then the new ones installed, all without loss of signal to the consumers.

A Russian helicopter was used, with a large, very efficient, Russian speaking crew. Unfortunately they arrived without official flight clearance at just the time when Ansett aircraft were due for extensive overhauls. So the helicopter sat on the tarmac for ten days at $1,000 a day waiting for inspection and clearance!

The skill demonstrated by the helicopter crew made the cost unimportant. There was only one hitch in the entire operation caused by an earth wire that was not disconnected. The pilot hovered the aircraft exactly over the spot while the earthwire was cut so the section was free to go.

When each section of the antennas was almost unbolted, ready for lift-off the helicopter would approach and four heads would appear in the open doorway. These four men guided the pilot onto the exact spot, the last bolts were undone the piece was lifted away. To install the new antennas the same procedure was used.

Once the technicians were ready to install the transmitters another problem arose. The transmitters (two different manufacturers so the best could be chosen after testing) had been ordered and notification had arrived of their departure but they had not arrived in Adelaide. Several days later a storeman in another state rang though to ask if we were looking for a number of boxes this big? The boxes were sent on and duly tested and installed.

The transmitters were not connected to the antennas immediately. John and his team wanted to be sure everything was correctly matched before power was applied. Just as well. On one station there were some connectors improperly tightened. Fixing that improved the situation but still did not give a good match (using a simple matching device - as proper amateurs would). Someone from interstate was called in, only to find that some section on the main connecting board inside the building had been installed upside down. Now there was a good match. Now the transmitters were connected to the aerials and a signal went out.

John had obviously prepared his material very well and had a number of slides to illustrate particular points. We now know a little more what we can expect if and when we are all forced to make the change from analogue TV to digital TV as we were forced to change our phones of choice.

Gippsland Gate Radio & Electronics Club Notes

I trust that everyone who attended September's General Meeting found the talk on Home Automation interesting. Shows where the future is in home electronics and computers.

Everyone should be pleased to know that we have finalized bookings for the new Hamfest venue. We now have a hall around 4 times bigger than our present hall and it has lots of undercover space. Don't be confused though as our regular meetings are still at the Guide Hall. This is only for our annual Hamfest / Sale. So we are as of now, taking bookings for sellers for the 2003 event in July. With the extra space, I am sure we can entice more sellers and maybe a few commercial sellers as well. With this amount of floor space, we need as many bookings as we can get. If you are interested in getting in early, you can contact the Club on email at: hamfest@hubbatech.com.au or ring me on 0418339779.

Rumor has it that our IRLP project has taken a step forward with the allocation of frequencies for the repeater. Now all we need is a bit more hardware. More information as the project progresses. By now of course JOTA would be over for another year and I trust all amateurs had the usual amount of fun. It is a good time to try out the field set up skills as a lot of us pick up the entire shack and transport it to a remote site to do the operating. I hope the enthusiasm didn't wane, as the following weekend should have seen the first of our Club Fox Hunts being held. If all went well, I was the fox. Results will be published next issue Club Notes. December has hit us so quickly that it hardly seems like a year at all since we had our last Club breakup. But here it is again and this year Phil (VK3YB) and Kathy have graciously allowed us to invade their home in Cranbourne North on 14th . More details will be in the Club mag or get them at the meeting. There will be NO General Meeting in December as per usual and the first meeting for January will be the General Meeting on January 17th. Looking ahead at Australia Day Weekend, the venue chosen by popular demand is at Neerim / Jindivik. Caravans and tents are welcome at the ground but bookings are required. For those wondering, the Australia Day weekend is the 25th, 26th, 27th in 2003. Well I think that takes us far enough into the future for this edition so to all who read this, have a Merry Christmas, a great New Year and I hope you all get new radios from Santa. Stay safe in 2003.

Central Coast Amateur Radio Club

The Central Coast Amateur Radio Club Hosts the Southern Hemisphere's Largest Amateur Radio and Communications Show

On Sunday 23th February 2003 the Central Coast is host to the largest gathering of Radio Amateurs, Radio Communications Enthusiasts, Computer and Electronic Hobbyists in the Southern Hemisphere. More than 2000 people from 40 clubs and organisation from all over Australia and the Pacific will converge on Wyong Racecourse to display and trade the latest radio communications equipment. Exhibits and operating displays will show and demonstrate:

- All facets of Amateur Radio
- CB Radio
- Shortwave Listening and Scanning
- Packet Radio - Computerised Communications
- Television and Multimedia transmission and reception demonstrations
- Interesting technical lectures, seminars and workshops
- Electronic construction
- Exhibits of Vintage and Historical Radio collecting and restoration
- Volunteer Emergency Communications
- Satellite Reception
- Hobby computing
- Internet communications
- Radio Fox Hunting
- Truckloads of pre-loved equipment at give away prices in the flea market and disposals areas.
- See all major Radio and Electronics equipment suppliers together under one roof with many dealers showing the latest offerings and great bargains

Throughout the day there will be several seminar sessions and workshops on topical subjects, with presentations from experts and equipment suppliers, including talks on the latest technology.

Plenty of off street parking is available within Wyong Racecourse grounds. Tea, coffee and biscuits will be available from 8.30 am to 3.00 p.m. at no charge in the Dining Room. Hot and cold food can also be purchased within Wyong Racecourse.

Anyone with an interest in radio communications or electronics can contact the event organisers, The Central Coast Amateur Radio Club, by phoning 02 4340 2500 for more information. There is an extensive and informative web site covering the Field Day at www.ccarc.org.au .

Gates to the Racecourse will be open to the public from 8.30am Entrance fee: Adults $10.00, Seniors Card, pensioner concession, students $5.00, Children under 12 free.

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South Vic 3128

Large loop with balanced feed

The use of a large horizontal loop as a multiband antenna was discussed in QST April 2002 by Kirk A Kleinschmidt NT0Z. The idea was also featured by Pat Hawker G3VA in his Technical Topics column in Rad Com September 2002. Pat G3VA described his setup on a small suburban house lot near London which he had used successfully for many years.

Kirk NT0Z used a loop intermediate in size between 40 and 80 metres of the desirable wavelength circumference. The aim is to get as large a loop in the air as possible in order to get reasonable performance on the lower bands. The loop was fed initially with coax and a tuner. However to get lower losses the feed line was changed to open wire line and a balanced tuner was used. In addition to the lower losses of the open wire line the noise pickup was improved due to reduced pickup on the balanced line. Noise can be picked up on the feedline in the vicinity of household noise sources and balanced line is less susceptible to this.

The loop is shown in Fig 1. While this diagram shows a full wavelength loop for 80 or 40 metres this is desirable but not essential. Similarly while a height of 40 feet is shown both greater height and lesser height is useable. The height is whatever you can manage. The best shape is square or maybe a circle if you can work out how to suspend a circular loop. However rectangular and triangular loops will work but remember the aim is to get a large area for the available perimeter wire length so avoid narrow loops if possible. The dimensions for a one wavelength loop perimeter are for 80 metres 272 feet and for 40 metres 142 feet. The loop should be square so the sides are one quarter of the perimeter. However not everyone can make the loop square. Just try and do the best you can. The length can be different too as the tuner and the open wire feed allow for a considerable range of adjustment.

The secret of having low losses and minimising feed line noise pickup is to use open wire line feed. The balanced nature of the feed line minimises noise pickup. A coaxial line picks up noise on the outside of the line which can be coupled into circuit fairly easily if matching and coupling is not up to scratch such as is often the case when feeding a balanced antenna with coax and a makeshift balun or no balun. A high SWR can also contribute to line losses particularly when matching the antenna at the transmitter end of the feed line. This is illustrated in Table 1.

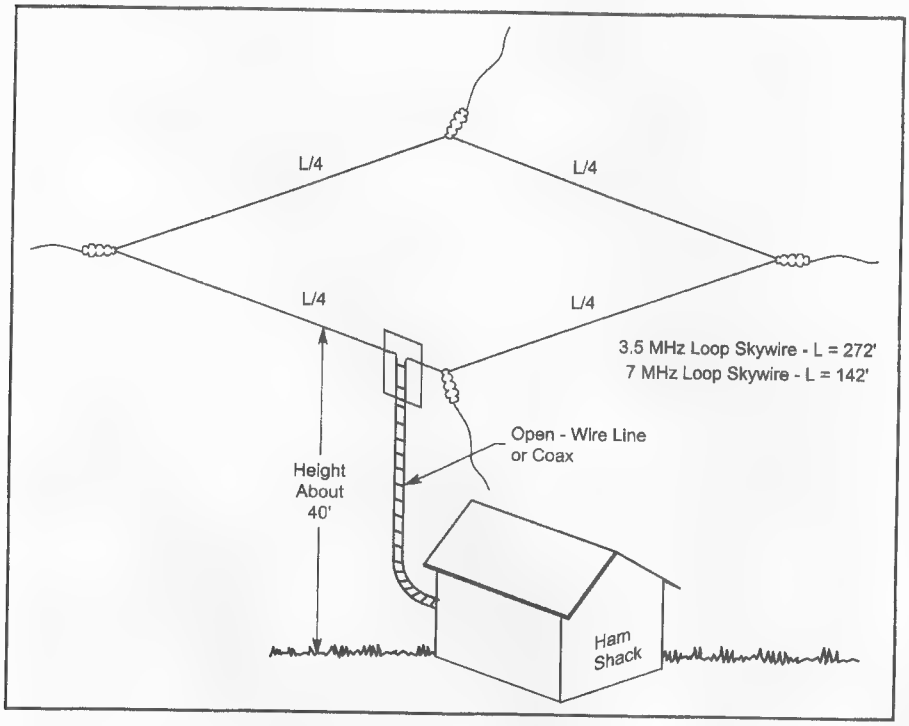


Fig 1. Horizontal Loop. Put up the largest loop you can. Keep loop as square as possible. Perfect symmetry is not important. Use balanced Open Wire Feed for best performance.

Table 1. Comparison of Loss of Belden 8214 Coaxial Cable To 450 Ohm ladder Line. Belden 8214 is a Foam Dielectric RG213/RG8 type cable.
Table calculated by Dean Straw N6BV QST Senior Assistant Technical Editor.
Cable Length 50 feet. Antenna 66 foot dipole at 30 feet.

Frequ MHz	Beldon 8214	450 balanced line
1.9	26.9	8.82
3.8	13.7	1.37
7.15	0.19	0.07
10.14	2.85	0.07
14.27	5.3	0.15
18.14	6.96	0.31
21.4	0.78	0.12
24.9	3.94	0.13
28.5	5.69	0.18

Kirk NT0Z used 450 Ohm ladder line to feed his loop and built a balanced tuner to use at the shack end of the line. This tuner based on a design by AG6K connects the balanced L Network tuner directly to the balanced ladder line and places the balun on the 50 Ohm matched side near to the transmitter. This reduces stress on the balun and ensures efficient balanced matching of the open wire ladder line. The tuner is shown in Fig 2. This tuner has appeared in a number of ARRL publications. The capacitor can be on the load side or on the transmitter side of the twin ganged roller inductors depending on the load to be matched. The inductors are roller inductors ganged together. The roller inductors are expensive and other tuners may be attractive.

Another solution to the coupler is to use one of the other balanced coupler designs such as Drew VK3XU's Swinging Link Coupler described in AR July 2000. Also possible would be the use of a remote mounted automatic antenna coupler such as an SGC 231 with appropriate decoupling to suppress currents on the coax outer.

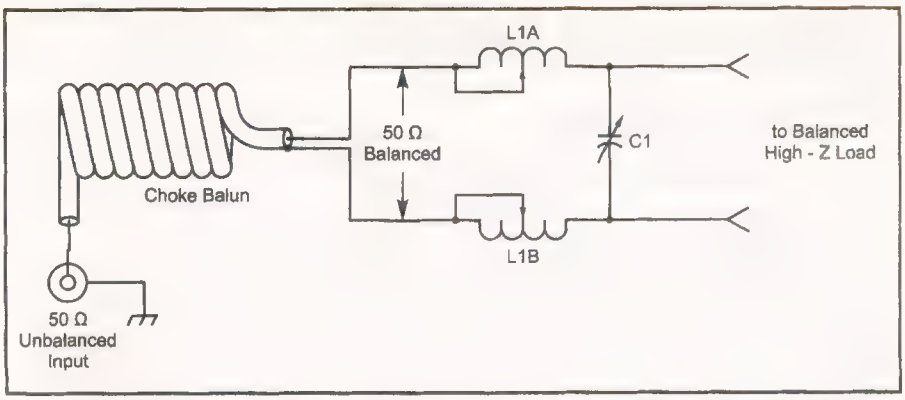


Fig 2. Balanced Tuner based on work of Rich Measures AG6K. The roller inductors are coupled together. The Balun is a roll of coax. The balun only has to cope with the 1: 1 balance to unbalance and not with a high SWR. The capacitor can be either side of the inductors depending on the load to be matched.

The Central Coast Field Day

for

RADIO AMATEURS AND ENTHUSIASTS, COMPUTER AND ELECTRONIC HOBBYISTS

Sunday 23rd February, 2003

Wyong Racecourse. Gates open 8.30 am

Truck loads of pre-loved equipment at giveaway prices in the flea market and disposals area.

See all major radio and electronics equipment suppliers together under one roof with many dealers showing the latest offerings and great bargains (see web site for latest list)

Radio fox hunts

Vintage and Historical Radio Exhibits

Amateur television transmission demonstrations

Interesting technical lectures, seminars and workshops (see web site for latest list)

Packet Radio - Computerised Communications Displays

Scanning and Dx Listening displays and information

DON'T MISS THE BIGGEST FIELD DAY AND HAMFEST IN THE SOUTHERN HEMISPHERE

Presented since 1957 by THE CENTRAL COAST AMATEUR RADIO CLUB INC.

For further information write to The CCARC, PO Box 346, Woy Woy, 2256 NSW

Phone 02 43402500, Web www.ccarc.org.au Email vk2afy@hotmail.com

FOXX-11 Mini Transceiver

A simple QRP transceiver appeared in The QRP column of Dave Ingram K4TWJ in CQ June 2002. This is one of the kit mini transceivers from Kanga US. They are up to the FOXX-111 which is the latest in the line. The design started with GM3OXX and the kits have been developed by Bill Kelsey N8ET of Kanga US.

The circuit is shown in Fig 3. The final transistor Q2 is used both as the TX final transistor and as the receive mixer/detector. The xtal and the low pass filter are for the band of operation. The later FOXX-111 has a couple of extra features.

The filter components could be found by looking up a similar design in one of the Amateur Handbooks. The design is not critical as it only needs to suppress the harmonics to an acceptable level.

The kits are designed so that the rig can be fitted into an "ALTOIDS" mint lolly tin. Similar tins are used for similar products locally.

Kanga Products have a web site at: www.bright.net/~kanga/kanga/

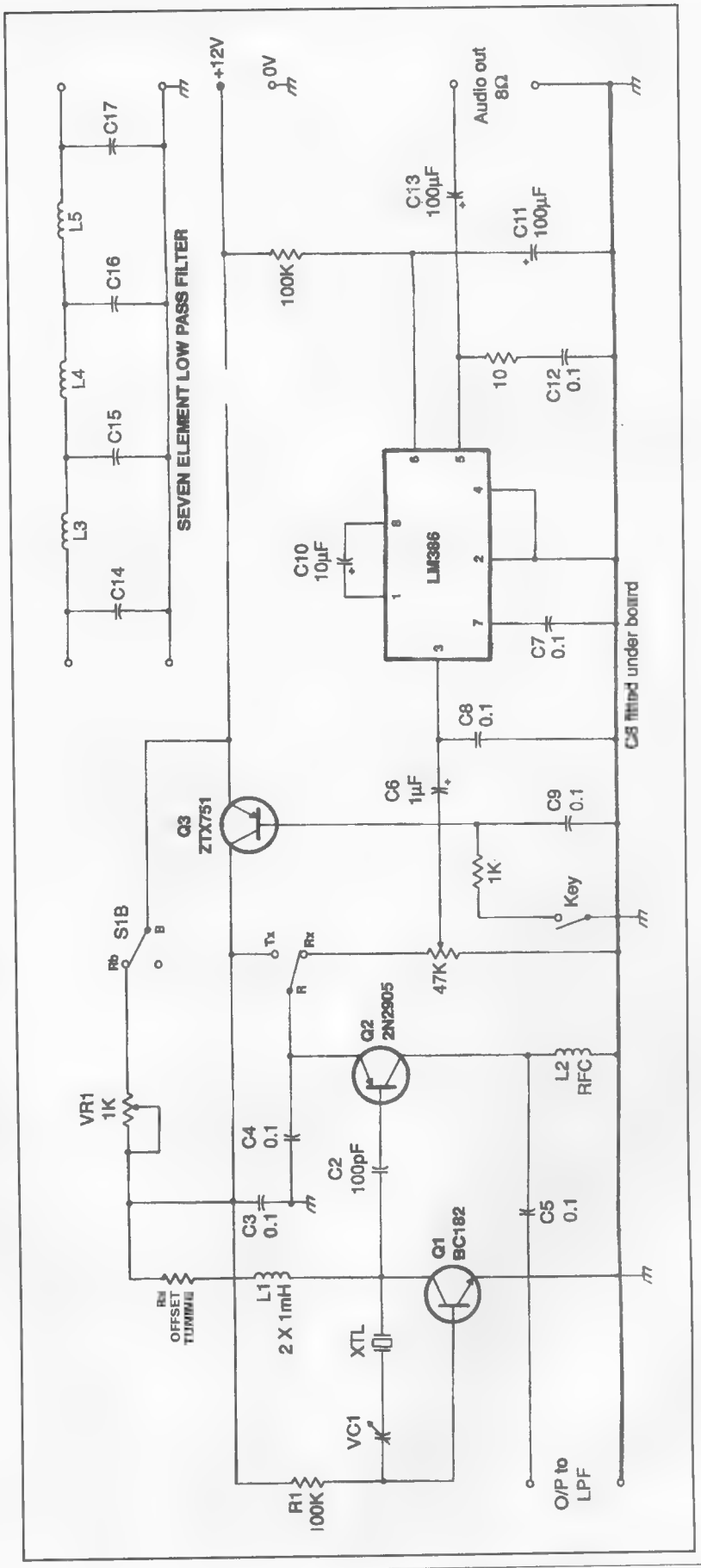


Fig 3. FOXX-11 Transceiver . Filter Components chosen for band of operation.

PLAN AHEAD

December/January

Ross Hull VHF Contest

between December 26, 2002 and January 12, 2003.

(Details page 43)

Summer VHF/UHF Field Day

★★★★★★

February

VK3GH Hamfest, Healesville

Central Coast Field Day, Wyong (see page 27)

Gosford Field Day

Boom Correction Factors in Yagi Antennas

Gordon McDonald VK2ZAB

This is for all Yagi home brewers and anyone else who may be interested:

Determining the increase in length of Yagi elements passing through a metal boom was brought out of the realm of guesswork by the procedure developed by Guy VK2KU and published in AR and QEX a couple of years ago. The correction factor determined by Guy's method applies to booms of circular cross section and it was thought that booms of different shape, particularly square section, would require more or less correction than that required for circular sections and that this would need to be determined by experiment.

An anticipated requirement of the near future motivated me to carry out the experiments necessary to determine these corrections. Briefly the experimental set up requires the construction of a simple Yagi [three elements] on an insulated boom with provision to substitute metal booms for the director in such a way as to maintain the spacing between it and the driven element plus the means to change the length of the director in small increments. The Yagi is then fed with a signal from an RF generator through an isolating pad and a directional coupler. The return port of the coupler is connected to an indicator [Spectrum Analyser] so that return loss can be measured.

To relate the results to Guy's method, the length of a 0.42 wavelength director at the test frequency [450 MHz] was cut and this 280 mm long 6.35 mm diameter element was mounted in the insulated boom. Return loss was measured at 18 dB.

A circular metal boom of 25 mm diameter was then substituted and directors increasing in size in 1 mm increments progressively installed, checking the return loss at each increment. This was found to come to 18dB with a director of 293 mm indicating that this was electrically equivalent to the insulated boom with a 280 mm director. Having thus experimentally determined that the correction factor for boom and element diameter used was 293 - 280 = 13 mm, the correction factor was calculated using Guy's procedure. This was found to be 12.5mm. This was deemed to be acceptable correlation.

Next the metal 25 mm square boom was installed and return loss measured for changes in director length as before. The 18 dB point was reached for a director length of 295 mm indicating that the correction required in this case was 15mm.

Therefore, the procedure for determining the correction factor for square booms is: Determine the correction for a round boom of the same diameter as the length of the side of the square intended for use using Guy's procedure and add 20%. [15 mm - 12.5 mm = 2.5 mm. 2.5/12.5 = 1/5 = 20%]

The correction factor for a channel section boom [like a square with one side missing] was also experimentally determined and found to be the same as that for a round boom of the same diameter as the side of the channel.

Note that in the case of both the square and the channel the element was mounted through the centre of the side. Some variation may occur if the element is mounted off center. [Why anyone would want to do this I don't know but the question has been asked].

Technical Abstracts *continued*

Bypass Capacitors

RF Bypass capacitors were discussed in the In Practice column of Ian White G3SEK In Rad Com July 2002. The choice of the right bypass capacitor requires some thought. The construction of the capacitor affects its properties and lead inductance and leakage or losses need to be considered as well as the capacitance value. A table giving the reactance of capacitors was given and is reproduced as Table 2. This is useful but needs to be viewed with regard to the impedance of the circuit to be bypassed as well as the lead inductance and loss resistance of the bypass capacitor.

A surface mount capacitor will have a very short lead length and a ceramic disc or monolithic type will be able to be used with short leads. Plastic film type capacitors may have somewhat greater self inductance. Similarly a TAG tantalum electrolytic may have less self inductance than an aluminium electrolytic. Electrolytics may also have loss resistance which is significant. These considerations need to be taken into account when selecting bypass capacitors. The very low values of reactance in Table 2 are marked with an "*" and may be difficult to realize in practice.

Table 2. Capacitor Reactance The values marked with an * may not be achievable due to the self inductance and loss resistance of the capacitor.

	Reactance ohms at Frequency					
Capacitance	**10kHz**	**100 kHz**	**1MHz**	**10MHz**	**100MHz**	**1GHz**
100 pF	160,000	16,000	1,600	160	16	1.6
1 nF (1000 pF)	16,000	1,600	160	16	1.6	*0.16
10 nF (10,000pF, 0.01mF)	1,600	160	16	1.6	*0.16	*0.016
100 nF (100,000pF, 0.1mF)	160	16	1.6	*0.16	*0.016	*0.0016
1.0 mF	16	1.6	*0.16	*0.016	*0.0016	*0.00016
10 mF	1.6	*0.16	*0.016	*0.0016	*0.00016	*0.000016

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

Eighty years ago, when SS Titanic got into trouble, its radio officer sent a SOS and position message on 500 kHz. At the time, there were no organised, land-based radio monitoring stations listening on that frequency 24 hours a day. Other ships in the Atlantic Ocean monitored the frequency irregularly, and only one nearby ship answered the SOS from the Titanic, and responded to the emergency. That disastrous event caused the governments of a number of countries to put together a plan to set up an international system to monitor maritime emergency frequencies worldwide and arrange rescue operations whenever and wherever needed. Australia was one of these countries, and began to build up a system of coastal radio stations that provided a 24-hour monitoring service for maritime distress signals. This service is now known as the Australian Maritime Safety Authority (AMSA), with its head office in Canberra.

Fortunately, for members of the ACT Division, an invitation was extended to visit AMSA's operations centre by Michael Collinson (VK1MA), who is a Communications and Systems Officer with AMSA. 48 members, some with their wives, accepted the invitation and fronted up at the entrance to the building at 8.00 pm on Monday, September 22, 2002.

As Radio Amateurs, we all felt at home as soon as we walked into the operations centre. There were computers and monitors everywhere, some monitors had very large screens displaying maps of sea lanes covering areas from the North of Papua-New Guinea, down to the coastal periphery of the Antarctic, and from the East of New Zealand to far into the Indian Ocean. Being familiar with Automatic Position Reporting System (APRS), we instantly recognised the meaning of all the annotations that the operators put on the monitor screens to indicate an incident or the position of a particular vessel. Just before we had arrived, an incident had occurred on the East Coast of Australia where a fishing boat had complained to AMSA that a bulk carrier was bearing down on it at great speed, which didn't allow for the nets to be hauled in. We never found out how the incident ended because we were moving from one section of the centre to the other. Like any other command centre, the walls were covered with maps, each extending from the floor to the ceiling. They showed large areas of the Southern Hemisphere around our place in the sun. Looking at the maps, we were quietly working out how many skip zones between Canberra and Djakarta, Beijing, Wellington, and Tokyo.

The centre itself is not equipped with receivers, transmitters, or (dish)antennas. These are located in strategic areas around Australia. One transmitter/receiver site is near Brisbane and the other near Perth in Western Australia. Transmitter output power is one kilowatt into highly directional antennas to cover specific areas of the oceans. All the equipment is remotely controlled from the operations centre with their individual status displayed on monitors. 50 operational frequencies are allocated to AMSA in the maritime service bands. Just as for radio amateurs, all the usual HF bands are provided for to ensure 24-hour coverage of a particular area on the globe. The bands covered are 137, 72, 48, 36, 24, and the 18 metre bands. The exact frequencies are available from the ACA. One aspect of the visit that should be mentioned was the display of emergency beacons. Again, all of us are familiar with beacons because we monitor them constantly to know when the band(s) are open. However, these are distress beacons that are carried by ships, mariners, aircraft, and travelers in the outback. Some of them are so small they fit into your shirt pocket. When activated, they transmit information to earth-orbiting satellites that are moving in polar orbits around the globe. The satellites, acting as our familiar repeaters, retransmit the information to AMSA's Rescue Coordination Centre (RCC) where appropriate action is taken. Early distress beacons operated on 121.5 and/or 243 MHz, but these are now being replaced by ones that transmit only on 406 MHz. They are highly efficient devices using surface mount technology, programmable memory systems, and lithium batteries. When activated, they transmit for two days and have an omni-directional transmit pattern that is easily received by an orbiting satellite or a hand-held direction finder.

This and That: David Thearle finished Ron Bertrand's on-line course and passed Novice and Regulation exams. Lyle Williams (VK1XLW) passed the Morse sending exam and is well on the way to get higher qualifications.

The next general meeting will on 27 October 2002 at Scout Hall, Longerenong St. Farrer, at 8.00 pm.

Snail mail address for contributions: The Editor
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

email address for contributions:
edarmag@chariot.net.au

VK2 Notes

by Pat Leeper VK2JPA

If you know of anyone needing help to pass the examinations, please note that the Parramatta office is open Tuesday nights, 7-9 pm, with Terry VK2UX, the Divisional Education Officer, in attendance to offer help with any problem with theory. Terry is only too happy to assist anyone having difficulty with their studies.

The NSW Division now has the callsign of VK2WHQ that is intended for use from WIA premises in contests.

The Conference of Affiliated Clubs will be held on the morning of Saturday 30th November, with the Divisional Christmas Party following in the afternoon. So mark that date in your diary for a get-together with the council and friends on that day.

There will be a total clean-out of the last of the Deceased Estate items by the end of the year. Most of this will be available at the next Trash & Treasure on 24th November, so come early to have a chance to pick up some bargains.

The Homebrew Group will again be happening after the T&T, at about 2pm, upstairs in the WIA meeting room at 109 Wigram Street Parramatta. The group attracts around twenty members, with interesting talks very pertinent to lovers of homebrew projects.

The last examinations for the year will be held on 1st of December. Applications are due on Thursday 21st November.

The office will close for the holidays on 20th December.

That's all for this month.

VK3 Notes

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

Readers' issue of AR magazine

In a brief "Help Wanted" announcement on page 53 of the September issue of Amateur Radio magazine, is contained a plea for contributions to make the December issue more reader friendly than usual.

The Editor Colwyn Low VK5UE believes that with more time on our hands over the summer, that edition of the magazine should include extra articles and projects of general interest.

Give it a thought. What are you doing that could be written up for AR magazine?

If you are responding to the request, don't forgot to let the Editor know that your contribution is for the December "readers' issue" edition.

(Please sent contributions direct to Editor in SA. Editor)

Happy birthday Icom

It is now 20 years since Icom Australia began. A supporter of the WIA, this communications company has expanded over the past two decades far beyond the amateur radio sector.

Seems just like yesterday, although it was in the mid 1980s, when I was invited to visit the Icom Australia headquarters in Melbourne to meet the Icom's founder, Tokuzo Inoue, JA3FA.

This month Icom Australia is marking its 20th birthday, and I am honoured to have received a personal invitation to join in the celebration that includes a river cruise.

WIA Victoria Council Elections

The three-year term of office for the WIA Victoria Council will conclude at the Annual General Meeting in May 2003.

Nominations are invited for the 2003-2006 Council and they will close at noon on Friday 21 February 2003. Nominations will only be accepted on forms available from the Secretary.

WIA Victoria 2002 Annual General meeting/Notices of Motion

The closing date for receipt of Notices of Motion for the AGM is noon on Friday 21 February 2003.

Members are reminded that notices of motion must comply with Company Law as well as the WIA Victoria Articles, be signed by at least three financial members and reach the Secretary by the closing date.

Christmas/New Year Holiday break

The WIA Victoria office will close at noon on Tuesday 17 December 2002 and re-open on Tuesday 4 February 2003. Membership applications received by post during this period will be processed.

During the holidays, a recorded message on the WIA Victoria office number 9885 9261 will provide emergency telephone contact numbers. Fax facilities at the office will not be available at the office during the holiday period.

VK3BWI Broadcast

The final broadcast for 2002 will go to air at 8.00 pm on Sunday 3 December. Transmissions will recommence on Sunday 2 February 2003.

While the office is closed, any material for the broadcast should be sent by post to WIA Victoria, or preferably be forwarded by email to wiavic@wiavic.org.au A reminder that during the holiday period no fax service is available.

VK4 Notes

Qnews

Compiled by Alistair Elrick VK4MV

Cairns on the Air

News from John VK4JKL, President of the Cairns Amateur Radio Club Inc, along with some corrections from Geoff VK4XUK, about upgrade and repair work recently completed at the VK4RCA Mount Yarrabah repeater site.

(Mount Yarrabah repeater site is located at 16deg58minS 145deg50minE, elevation 632 m ASL)

The UHF Voice Repeater on 439.350 - 433.350MHz has been refurbished and is back on air. The transmit and receive antennas are split with the UHF transmit antenna being a home brew J-pole in a PVC radome mounted low on the tower. Transmitter power is 40 W high 10 W low (DTMF switchable). The UHF receiver is cabled via a VHF/UHF diplexer to a dual band Diamond X-200A that is 5 m above the UHF TX antenna to provide TX/RX isolation.

VHF TX/RX is via the dual band antenna, through the VHF/UHF diplexer and into a set of 3RX and 3TX filters to provide TX/RX isolation. The VK4RCA VHF Voice Repeater is on 146.950/ 146.350MHz.

The VK4RCA team is asking for hams in the region to test the upgraded installation on VHF and UHF and provide a report on how they consider the new work to be performing. Already Geoff VK4XUK has had a report from Tablelander Bill VK4WL mobile/parked near Mareeba on UHF repeater. He was getting in well and receiving S7 with repeater on Hi and S5 with repeater on Lo. Remember too that VK4RCA is on IRLP node 648.

Send your reports on packet to: vk4jkl@vk4xuk.fnq.qld.aus.oc or to vk4xuk@vk4xuk.fnq.qld.aus.oc

VHF DX

The Spring and Summer VHF/UHF season is fast approaching with all the interesting propagation that comes at this time of the year. On both 6 and 2 metres, 'Sporadic E' is at its maximum likelihood, and the potential for coastal ducting up and down the Queensland coastline and well into New South Wales combine to make this a very interesting time of the year!

VK4JKL who along with VK4FUQ retransmit QNEWS on 7.070/7.072 MHz from Far North Queensland recently worked Rick P29KFS in Port Moresby on the P29 repeater, another Rebroadcaster of the Q. On 147.000 MHz Rick and Jim P29JB had a good noise free signal to the VK4JKL beam, looking South. Well, the path seemed solid, so after putting in a "break" Rick came back and confirmed it WAS the P29 repeater and sure enough, there was the ID soon after. (JKL didn't doubt KFS for a minute.. HI)

EMR Software

Though the date for the introduction of the ACA's electromagnetic radiation framework for radio amateurs is still uncertain, amateurs have been busy devising software to help calculate their station's compliance. Two pieces of software are available, both by Doug Macarthur VK3UM. One is a site radiation calculator while the other is a site radiation graph calculator. Both can be downloaded from the website of the WIA Eastern Zone Amateur Radio Club. http://www.qsl.net/vk3bez/

Broadcast Band News

The $6 million dollar radio Voice International Asia Pacific Broadcast Centre was officially opened in Maroochydore on VK4's Sunshine Coast by the man behind the project, multi millionaire Bob Edmiston of the UK. The center originates programs of a Christian nature for use on Short Wave using the former Radio Australia transmitters at Cox's Peninsular, near Darwin in VK8 and the footprint covers one-third of the globe.

73s from Alistair

Silent Key

Ian Sewell VK3IK

Ian Sewell, who passed away recently at the age of 82 years, was one of the diminishing group of amateurs who were licenced before World War 2. He received his licence in 1938 and was active in the first few years on the old five metre band. When activities resumed in 1946 he joined a group on 40 metres known as the Night Owls. Round table contacts would go on into the early hours of the morning. The group even published a newsletter called the Night Owl Heterodyne. Amazingly, a few copies still exist but it seems that the only member still around is Bill Holland VK3XC.

Soon after the war, Ian was co-opted into the Amateur radio Publications Committee through the efforts of Herb Stevens VK3JO. Ian was appointed circulation manager a position he held until the early 1950s. In those days, copies of AR had to be individually wrapped before posting to members. A job that Ian ably co-ordinated. These sessions often went very late into the night. Present day committee members think they have a hard job but at least we don't have to do that. A rare tribute was paid to Ian when a photograph of his and Lyn's wedding was published in the April 1951 edition of AR.

During the war, Ian worked at Commonwealth Aircraft where he formed a life long friendship with Bill VK3XC. In the early 1950s he worked with the late Bob Cunningham VK3ML. At that time Bob was the importer of Eddystone receivers and slightly later, the famous Geloso VFOs. Ian stayed with the Cunningham Organisation until he retired.

Our sympathy goes to Lyn and her family.

Bill Holland VK3XC, Herb Stevens VK3JO and Ron Fisher VK3OM

VK6 Notes

This is my second submission for AR Magazine. It looks like I am here for the long haul! In this world of instant communication it is taking me some time to adjust to writing an article that will not be read for four weeks, reminds me of the movie "Back to the Future." Hopefully I will get my head around this limitation of the print media and not submit information that could be regarded as history by the time you get to read it. Here goes, I will try to do my best.

Hamfest and SEANet

As you read this article both these events will be well and truly over. At the present time, Trevor, VK6HTW, states that numbers for SEANet are around the 50 to 60 mark and Hamfest table booking are around 30. It looks like these events will be well catered for.

Ham Radio to the Rescue

On Sunday 22nd September the town of Bindoon on the northern outskirts of Perth suffered a complete telecommunications failure. All phone lines and mobiles went dead. Luckily VK6HGM, Glen, came to the rescue and drove to a nearby hill with his 2 m rig. He put out a call for help on our Roleystone repeater, located many kilometres to the south and not line of sight. Glen's plea for help was answered by Geoff VK6AX almost as a reflex action. You see Geoff, a member of the Old Timers Network, started his career as a ships Radio Officer at the age of 17. Answering an SOS was second nature to him. In fact he told me he once responded to over 40 SOS calls in a day, during heavy storms off the coast of England! Geoff initially called Telstra, but found their automated menu system both frustrating and time consuming. He then rang Police Communications and relayed the fault. The town of Bindoon had its telephone system restored within 30 minutes. The townsfolk probably have no idea how amateur radio quickly fixed their problems, but relaying stories like this can give us a warm fuzzy feeling.

Ham Radio Course in 2003

VK6 can welcome four new operators since the last exams were held. Further exams will be held in October and December. Anyone wishing to get their license will be pleased to know that Neil VK6BDO will be running a comprehensive course next year, over 47 weeks. This course contains several modules including Regulations and Morse code. All levels of License, Novice, Limited and Full Call will be catered for. The WIA will subsidise the cost of this course to make it attractive to potential candidates. A location for the study group will be made in the future to suit the geographical location of candidates.

News in Brief

CTCSS is to be introduced on 70cm repeaters to solve the problem of LIPD interference.

Mal, VK6LC, has returned from his extensive trip from Perth to Cape York and the Torres Strait Islands. Look forward to his comprehensive article in a following edition of AR Magazine.

Bruce, VK6OO, informed Council that a book has been published posthumously regarding the life of Harry Atkinson, VK6WZ, about his radio industry experiences. This book will be available at Hamfest or via VK6OO. More info on the book release at http://www.vk6wia.org

Alan, VK6PG, informed me that he has won the Royal Signals Amateur Radio Society Anniversary Contest 2002. Is this a first for VK6?

Contacts for the Column vk6notes@vk6wia.org

Join WIA today

WIRELESS INSTITUTE OF AUSTRALIA

WIA is active in:

- QSL services
- Major role in amateur radio education
- Coordination of contests and awards
- Monitoring of illegal activity

"There is no denying that radio today still has all the magic that attracted people to the hobby all those years ago, when it first emerged onto an unsuspecting world."

Ernie Hocking, President
Amateur Radio April 2002

How to join WIA

- Through your local amateur radio club
- Through your Division (contact details on inside back cover)
- Contact WIA Federal Office (03) 9528 5962

A sad farewell

The time has come .....

I never expected that the end would come in this manner. But the sad facts are that the VHF/UHF station of VK5LP no longer exists! After 41 years of licensed operating, the station has been dismantled and the equipment returned to its original cartons ready for an eventual sale.

Because I am so well known throughout the amateur fraternity, both in Australia and overseas, some explanation is due to readers of my former columns, *VHF/UHF – An Expanding World* – and to those at the far end of many thousands of radio contacts since 1961.

The demise really started when, due to damage to my spinal chord, I was confined to a wheelchair from 1990. This ended one of my great loves, that of portable operating, for which I had a Kombi van full of equipment, separate from the home station, which could be moved at very short notice to a suitable elevated site.

The equipment in the home station gave almost faultless performance, but the antennas were my problem. Due to the very strong winds at Meningie, my six metre beam suffered fractured and broken elements. Eventually these were strengthened and remained intact. In the meantime, static discharges caused by lightning repeatedly damaged the 70 cm and 23 cm mast-head amplifiers. For some reason the one on two metres seemed immune!

So the problems were not in the shack but outside where I could not get at them for repairs. On many occasions my friend David VK5KK, often assisted by his father Keith VK5AKM and Mark VK5AVQ, effected repairs for me, despite the 400 km round trip to do so. Over the years, several others arrived to assist, one group headed by Trevor VK5NC and Colin VK5DK, came from far-away Mount Gambier. Colwyn VK5UE and his rock-climbing son Andrew also assisted.

Eventually, pressure of his daily work load prevented David VK5KK from attending, so for the past three years the MHAs have not been repaired. The final straw came recently when I discovered that galahs were gradually destroying the coaxial cables to the antennas – they rest on them in their hundreds – so I can't defeat them. Repairs could be made today and tomorrow the wretched birds could destroy them again!

So I am most grateful for the assistance that has been given me over the years, but I have no alternative but to close the station. In place thereof, I am still writing articles and books so will not be idle. I will retain my callsign and the TS680S which has a general coverage receiver in it as well as the capability of working on the HF bands should I ever feel the need. Won't life be different! At this emotional time, my thanks to so many for your wonderful support over the years that I was on the air.

73 de Eric Jamieson VK5LP.

Awards

Mal Johnson VK6LC, Awards Manager

The Federal Awards Program has just received Legal W.I.A. Microsoft 2000 software and a new XP computer, provided by myselfincluding a state of the art photo and paper scanner.

This new system is dedicated to our awards program and as time progresses all manual archived and current manual documentation will be digitised giving us faster retrieval and security on all records. Monthly updates and backup compact discs will be maintained with me and the Federal Office. The Awards Data base and new awards template files are developed on this computer and now we are able to forward the pull down files to our National Web Site.

As a notice to all members our Federal Awards computer email system is a stand alone system and does support the latest antivirus active scanning programs and if an email is received that contains any virus or worms etc it will be deleted, therefore if you correspond and don't receive a reply within 5 days try your friends computer to send me a email.

"You, without knowing it may be infected!"

WIA DXCC Standings

The next list will be published in February 2003 AR.

Mal Johnson, VK6LC, the W.I.A. Federal Awards Manager will need all new applications and updates to be processed by 14th December 2002.

This will allow Mal to adjust them as required and pass to the Editor by January 7th 2003.

If all goes well to publish the January /February issue of AR about 24th January 2003.

Mal has just returned back from holidays after a long 4wd trek to Cape York and advises the Federal Awards Office is now active and very busy. This Office will be open over the Xmas and New Year periods, unfortunately DXers never have holidays.

Silent Keys

The WIA regrets to announce the recent passing of:-

A J Cooper VK3VZV and **E J Harrison VK5AEH**

Bill Magnusson VK3JT

GO-32 BBS activated

At the time of writing the BBS software had been uploaded to GO-32 and the BBS is running – but is not yet fully functional.

The directory is holding several messages and the satellite is responding to requests for directory filling. The downlink signal is quite strong and it looks as though GO-32 will be a welcome and timely addition to the dwindling fleet of digital birds. With KO-23 out of action and KO-25 in poor shape, UO-22 has been the only fully functional 9600 baud satellite available. The GO-32 control station operators have reported that the BBS software is not yet in final form, the transmitter only being activated when a directory fill is requested. It is not as yet sending the required information to activate the download efficiency indicator in WiSP so this is always showing 0% even though the efficiency is obviously quite high. This will be rectified in a subsequent software upload. For those who may have missed the details of this 'new' digital satellite here is a summary.

TECHSAT–1B GO-32

Downlink: 435.325, 435.225 MHz FM (9600-baud FSK)

Uplinks: 145.860, 145.880, 145.890, 145.930 FM

Broadcast Callsign: 4XTECH-11

BBS Callsign: 4XTECH-12

Launched: July 10, 1998 by a Russian Zenit rocket from the Baikonur Cosmodrome. Status: Semi-operational.

As of August 18th 2002, BBS Software is running. There is a Beacon every 60 seconds. Directory and Files "download only" mode.

The downlink is FSK compatible with standard 9600 baud TNCs. It "sounds" similar to UO22/KO23/KO25. If the BBS is loaded, you will be able to work it using WiSP. If the BBS is not loaded, and you leave the TNC in KISS and open a terminal program, you should see the text "TECHSAT V.xx" about once a minute. For more info check: http://www.iarc.org/techsat/

Latest Jottings on AO-40

AO-40 experimental transponder operation started on May 05, 2001 at approximately 08:00 UTC when the U-band and L1-band uplinks were connected to the S-2 transmitter passband downlink via the Matrix switch.

The command team has taken another set of images, which just manage to capture the earth in one corner of the field of view. That has enabled calculation of ALON and ALAT figures. It turns out that AO-40 is in a good attitude to provide power and at the same time, protect the cameras from direct sunlight. Therefore the station keeping magnetorquing has been terminated and AO-40 will begin drifting past the sun. At approximately ALON = 330 the ALAT can be lowered.

All this is allowing the control team to collect valuable data, which will help to orient AO-40 to optimum values when 3-axis stabilisation is activated. If you have 20 metre capability you can listen for the new "AMSAT Net for Beginners", which started on July 17th and has been held weekly each Thursday 0200-0330 UTC although this may be a bit early in the day for propagation to this part of the world. If you are an Internet surfer you can join the net by connecting to node "925", the Western reflector in Las Vegas NV. (http://www.irlp.net).

In the near future the squint angles and solar angles will be worsening. The AO-40 command team has announced that the passbands will be turned off in about 7 days as solar/squint angles worsen. The passbands will be re-established in several weeks, when AO-40 comes out of drift and ALAT begins lowering. When AO-40 gets to that point, the best conditions will be shortly after perigee. The schedule will be adjusted accordingly. AO-40 should be back to ALON/ALAT = 0/0 about November 15th. It will be allowed to stay there until early March 2003.

On an entirely different tack, Roy VE7BPB in Vancouver reports he has had success with his testing using the JT44 weak signal program through AO-40. Conditions are best for CW/SSB signals when the squint angle is less than 20 degrees. Roy says he has had success with high squint angles around 45 to 50

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC with early check-ins at 0945 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC with early check-ins at 0845 UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA. 5001.

Graham's email address is:
vk5agr@amsat.org

degrees when no other stations could be heard. Weak signal modes like JT44 present a new area for genuine experimentation on AO-40. Roy said in an earlier message he posted, "I found that one difficulty is knowing where your downlink signal will be in relation to your uplink signal. The normal practice of just tuning for your own carrier doesn't work too well because you can't hear it." He found that he can run a program called Spectran, which helped him to reliably tune in his signals, even when they were below audibility. (If you have trouble accepting this situation, do some reading about JT-44 and weak signal reception in general). It's a fascinating area and well worth a look for the 'inquiring minders' out there.

Roy goes on, "I was able to find my own signal fairly quickly, and from there the JT44 frequency display got me down to the last few hertz. The JT44 sync tones seem to be around 1300 hertz, so by tuning the receiver, and watching Spectran for the train of pulses at about 1300 Hz, I could quickly find my downlink. And as a bonus, it would be a good way to identify another JT44 station that you couldn't hear. The pulse train is quite unique, with the higher frequency tones showing up as random dots next to the sync pulses."

If the prospect of experimenting with JT-44 excites you, here is a list of links for additional information and downloads of the software packages mentioned:

Joe Taylor, K1JT's, "official" Web site at
http://pulsar.princeton.edu/~joe/K1JT/

Additional JT44 links:

http://www.vhfdx.de/wsjt/jt44.htm
http://www.qsl.net/wb5apd/jt44-eme.html
http://www.pingjockey.net/cgi-bin/pingtalk

The Spectran web page is at:

http://www.qsl.net/padan/spectran.html

[from ANS]

Want a QSL card from AO-7?

A small number of the ORIGINAL two batches of AO-7 SWL QSL cards from the 1970s have been discovered in the AMSAT offices.

You had better get in early. The original message from AMSAT didn't mention numbers – but the number is limited. At the time of writing they were still being issued to applicants. They are not all perfect, but they are ORIGINAL, and are available for those that send an AO-7 reception report to: Andy MacAllister - W5ACM, 14714 Knights Way Drive, Houston, TX 77083-5640. Please include a business-size SASE with your reception report. Might be worth a try.

While we're on the subject of nostalgia reprints of the December 1974 AMSAT Newsletter are now available. This issue was published shortly after the launch of AMSAT-OSCAR-7. Not only is it full of AO-7 information, but also is fascinating to read. To get a copy, send a $5 donation ($6 for non-U.S. addresses) made out to "AMSAT" to: Andy MacAllister - W5ACM, 14714 Knights Way Drive, Houston, TX 77083-5640.

[from ANS]

Bad news regarding RS-12/13

For some months now reports have been coming in from regular operators questioning the status of RS-12/13.

The two amateur radio packages that constitute RS-12/13 are part of the larger Russian COSMOS 2123 satellite. It appears (although this report is officially unconfirmed at the time of writing) that COSMOS 2123 suffered a major electrical breakdown due to solar flare activity during late July and early August 2002. It's still being reported that efforts are underway to effect repairs, although the chance of success is small. So far we have had no encouraging news. We may have to face the fact that RS-12/13 has gone for good. These two 'packages' had a large following word-wide including many in VK and they will be sadly missed. They were among the most successful of all the RS series 'satellites'.

Marked increase in voice activity from ISS

Since last month there has been a noticeable and welcome increase in the voice operations from the International Space Station.

ARISS school contacts have resumed with the Expedition 5 crew of mission commander/U.S. astronaut Peggy Whitson, KC5ZTD, and Russian cosmonauts Valery Korzun, RZ3FK and Sergei Treschev, RZ3FU. Valery and Sergei have been heard making general voice contacts fairly regularly and Peggy has been heard in 'telebridge' contact with school children with the help of Tony VK5ZAI. All in all a general increase in amateur radio activity that is pleasing to see.

PLAN AHEAD for March 2003

Eastern and Mountain District Hamfest, Heathmont

John Moyle Field Day

Bass AR IRLP Group Hamfest, Boneo

Urunga Field Day

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Gearing up for summer DXing

I managed to tear myself away from other 'distractions and occupations' to spend an hour or so on air during the last week in September and managed to work YL2PQ, EA5FW, RK1PWA, UA6NY and SP9CCD all on 12 metres. This is a strange band. Activity seems to wax and wane with no particular pattern. It should behave like 10 m, but even when 10 m is open and active, often there is little or no activity on 12 m while at other times there is DX to be had with ease.

The 30 m band can also throw up a surprise or two. Working into the US is easy on this band in our early evenings and it is interesting to listen to stations in the Eastern states increase in strength, followed by the more Western states as the sunrise sweeps across the USA. Occasionally propagation on 30 m is particularly good towards stations in Antarctica and I had a recent CW QSO with Mike, RW1AI/ant who is currently stationed at the Russian Antarctic base 'Vostok'. During our QSO I happened to mention that we were having a bit of 'cool' weather in Melbourne, especially in the early mornings. I knew that Antarctica is the coldest place on Earth but I suddenly felt very warm indeed when Mike replied that his outside temperature was –60°C. Mike mentioned that the lowest minimum temperature ever recorded on Earth was –88°C, also recorded at Vostok. I felt positively sweaty because having experienced temperatures of –24°C I could imagine the 'nip' in the air at his QTH!

I am looking forward to working some 160 m DX after being told by a couple of operators that DX activity on this band increases during summer. I have added 4 more radial wires, each about 45 feet long, to my W1FB 'shorty' vertical, so hopefully it'll perform a little bit better. After adding the extra radials I noticed that the 2:1 swr bandwidth narrowed slightly (about 3 kHz). Is there any antenna expert out there who can enlighten me as to the reason behind the narrowing bandwidth?

There will be some interesting DX on the bands this month, especially from the frozen regions to the south of us. Have fun and hope to hear you on the air.

The DX

3C, EQUATORIAL GUINEA. Vitaly, VE6JO, says that he will be here from the 2nd until the 24th of November. He has been issued with the callsign 3C2A and has been granted access to all bands and modes and is currently awaiting its arrival in the post or via FAX. His equipment will comprise a FT-847, Sigma-5 vertical and some wire antennas for the 40, 80 and (maybe) 160 m bands. He is also trying to locate a small beam and solid state amplifier. [TNX VE6JO and OPDX]

5R, MADAGASCAR. Phil, G3SWH, and his XYL will be returning to Madagascar for a holiday from the 5th until the 19th of November. He is expecting to have his 5R8HA call reissued for the period of his visit. Phil plans to operate from a number of locations on the main island (IOTA AF-013) between the 5th and 13th and from Nosy Komba (IOTA AF-057) between the 14th and the 19th. This is a holiday type activity but he hopes to be on air as much as possible on all bands 40 – 10 metres CW only. QSL via G3SWH, either direct with a SASE and return postage or via the RSGB bureau. [TNX G3SWH and OPDX]

9K, KUWAIT. John, W4NU, is currently active as W4NU/9K2 on Sundays after 1800Z around 21250kHz moving to 14200kHz when the bands open to the USA. He says that he only gets on air every second Sunday due to work commitments and expects to be in Kuwait until at least early January. Nancy, NK4U is John's QSL manager. [TNX W4NU and OPDX]

9M6, EAST MALAYSIA. Kazu, JA1RJU, will be active as 9M6JU over the period of the 18th until the 25th of November. He is planning to operate on HF and 6metres. QSL via JA1RJU. [TNX JA1RJU and OPDX/KB8NW]

CT9, MADEIRA ISLAND. Rudi, DK7PE, says that he and a group of seven other members of the Lufthansa Amateur Radio Club will be operating as CT9DLH from the 7th until the 11th of November. They plan on operating on all bands 160 – 10 metres using SSB, CW and PSK. QSL via DL4FP. [TNX DK7PE and OPDX]

EA8, CANARY ISLANDS. Cesare, I5WEA is planning a trip to Tenerife where he will operate as EA8/I5WEA. He will be there until the 20th of November and says he will be concentrating mainly on the 30, 21, 14 and 12 metre bands. QSL via I5WEA. [TNX I5WEA and 425 DX News]

FO, AUSTRAL ISLANDS. Tony, 3D2AG, is planning on operating from Rapa Island (OC-051) in the Austral Islands. Tony expects to arrive there in late October with expectations of staying for approximately 1 month. He will be using basic wire antennas so don't expect a huge signal from him. No QSL route is given but try his home call via the bureau. [TNX 3D2AG and OPDX]

J28, DJIBOUTI. Vincent, F8UNF, is currently active as J28UN and will continue so until at least the 1st of June 2003. Activity is planned for all bands 160-10 metres using CW and SSB. He mentions that his favourite band/mode is 10 metres using SSB, however this may be a little early in the morning for us in VK. If you manage a QSO then QSL direct via F8UNF, Vincent Charles, BP 12, 54760 Leyr, France. [TNX F8UNF and OPDX]

P5, NORTH KOREA. Ed, P5/4L4FN, is again very active and has begun appearing on 10 metres (around 2200Z on 28530 kHz) where he says he is getting out very well on using a new Hex beam. According to the KK5DO P5 website Ed has expressed an interest in working licensed kids of 16 years or younger who have the appropriate licence, so you youngsters should take advantage of a great opportunity of making a QSO with P5. Also mentioned on the website is that Ed has had over 15000 QSOs on 10 metres. [TNX P5/4L4FN and OPDX]

PJ2, NETHERLANDS ANTILLES. Joeke, PA0VDV, will be on air again from Curacao using the callsign PJ2/PA0VDV over the period of the 10th of Nov until the 2nd of Dec. He will only be using CW on 80 – 10 metres with a preference for the WARC bands. QSL via the bureau or direct to: Joeke van der Velde, Delleburen 1, 8421 RP Oldeberkoop, Netherlands. [TNX PA0VDV and OPDX]

PY, SOUTH SHETLAND ISLANDS. Oleg, UA1PBA is one of the radio operators at Russian research station "Bellingshausen" (R1ANF, WABA UA-04). He says that he will make a serious effort to operate as R1ANF/p from the "Padre Balduino Rambo" refuge. This station was erected in 1985 and is located on the Fildes Peninsula of King George Island in the South Shetlands (AN-010) and has never been operated from using amateur radio. Award hunters should be aware that this will be a great opportunity for a new location for the WABA programme. [TNX DL5EBE and 425 DX News]

TT8, CHAD. Pascal, F5PTM, will be operating as TT8ZZ until early December. He received his authorisation and licence on the 24th of September. He hopes to operate on all bands from 80 - 6 metres mostly using CW. He has already been very active on the 17, 12 and 10 metre bands. QSL via F5PTM. [TNX F5PTM and OPDX]

UR, ANTARCTICA. Alex, EM1KGG, is currently stationed at the Russian base "Akademik Vernadsky" (WABA UR-01, IOTA AN-006). Those looking for a QSO with him are advised to be up bright and early to have a listen around 21200 kHz at approx. 18.00 - 18.30 UTC on Saturdays and Sundays. This is when Alex is most likely to be on and is also when he has a sched with Paul, UT1KY. QSL via UT7UA. [TNX UT7WZA and 425 DX News]

ZL5, ANTARCTICA. Chris Post, N3SIG, is again active as ZL5CP from Scott Base (WABA ZL-02) on Ross Island (AN-011). Best time to catch him is between 0500 and 0700 UTC (a much more reasonable hour!) on approx. 14243 kHz. QSL via AI3D. [TNX DL5EBE and 425 DX News]

ZS, ANTARCTICA. Anton, ZS7/ZS4AGA is planning to be on air from "E-Base" (WABA ZS-04) on the Fimbul Ice Shelf in mid to late November. Currently he is stationed at "SANAE IV" the South African Antarctic base at Vesleskarvet in Queen Maud Land (WABA ZS-03). He expects to be calling in to the Antarctica net on 21275 kHz on Mondays at 1700 UTC (again, you'll have to be up bright and early!). [TNX DL5EBE and 425 DX News]

DXpeditions

CY0, SABLE ISLAND. Various rumours are going around that a group of Canadians, namely George/VE3NZ, Nick/VE3EY and Lali/VE3NE, will be signing as CY0MM from Sable Island over the period of the 15th until the 26th of November. They are planning activity on HF and 6 metres using CW, SSB and RTTY modes. Their website at http://www.dipole.com has more information. [TNX VE3NZ and OPDX/KB8NW]

KH8, AMERICAN SAMOA. Glyn, GW0ANA, who is the team manager of the upcoming KH8 DXpedition, has issued the following details and callsigns for their KH8 dual IOTA DXpedition to the islands of Tutuila and Ofu:

- Operations from the Island of Tutuila (IOTA OC-045) will use the callsign K8T (KILO 8 TANGO). Activity begins from Tutuila on the 28th of Oct and ends on the 8th of Nov. The QSL route for this IOTA is via Glyn, GW0ANA, only and the address is in any international callbook or can be found on the web on QRZ.com.
- Operations from the Island of Ofu (IOTA OC-007) will use the callsign K8O (KILO 8 OSCAR). This operation starts on the 29th of Oct and ends on the 7th of Nov. The dates and times for this arm of the operation may vary as flying to and from the island is heavily dictated by the weather. However, the team will give it their best shot and will operate from Ofu for as long as possible. The QSL route for this IOTA is via David, AH6HY, only and the address can be located in any US callbook or on the web on QRZ.com [TNX GW0ANA and OPDX].

Round up

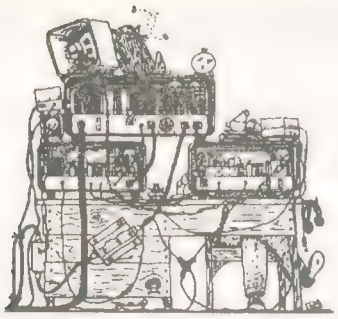
8N1, OGASAWARA ISLANDS. The JARL wants to remind us that a commemorative DXpedition is currently on air from the Ogasawara Islands to celebrate the JARL's 75th anniversary. Activity began on the 15th of September and should last until around mid March 2003. The callsign is 8N1OGA and activity is on all bands and modes. [TNX OPDX]

Alex, PA3DZN (ex TL5A, 9Q2L, 9X5EE, D25L, etc) has been re-assigned to Kenya by UNICEF for the next two years at least and is currently operating as 5Z4DZ. He arrived there in April and wasted no time in putting plans together for a station to operate on 40 – 10 metres. Alex says that "Kenyan operators do not yet have access to the 6, 30 and 160 metre bands but the Radio Society of Kenya is lobbying very hard for 30 and 160 m priviledges. 6 metres is especially difficult as Kenyan TV still broadcasts in the 50 MHz band." Alex is hoping that he can gain permission to use 160 m as this is his favourite band. During his stay he expects to do some travelling through Eastern/Southern Africa but doesn't expect to be QRV much unless he is invited to operate as a guest from a local ham operators shack. QSL is via PA1AW, Alex van Hengel, De Manning 15, 2995AE Heerjansdam, The Netherlands.

Some news for the paper chasers. The DXCC recently released details of their **new 30 metre (10 MHz) Single Band DXCC award**. The DXCC said, "Applications for this award will be accepted from the 1st of October 2002. The 30 Metre DXCC certificates will be dated but not numbered. 30 metre credits will count toward the DeSoto Cup competition that ends on the 30th of September 2003. They will also be included in the DXCC Annual List Totals for the period ending on that date. A 30 Metre endorsement to 5 Band DXCC will also be available". [TNX DXCC and 425 DX News]

Sources

The information above was supplied by the following individuals and organisations; VE6JO, G3SWH, W4NU, JA1RJU, DK7PE, I5WEA, 3D2AG, F8UNF, P5/4L4FN, PA0VDV, DL5EBE, F5PTM, UT7WZA, VE3NZ, GW0ANA, PA3DZN, JARL, DXCC, 425 DX News and OPDX. Our thanks are extended to all for allowing it to be published in Amateur Radio's DX Notes.

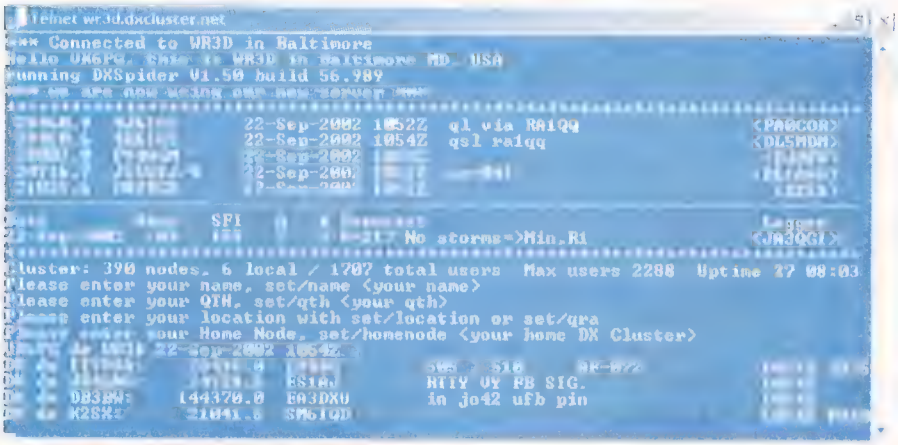


Ham Shack Computers

Alan Gibbs VK6PG
223 Crimea Street, Noranda WA 6062
Email: vk6pg@tpg.com.au

Part 20
DX Clusters

One of the most exciting activities in Amateur Radio (AR) today is chasing rare DX stations worldwide. Collecting countries worked for a DXCC Award (100 different countries), hunting for Zones (WAZ Award), working IOTA (Islands on the Air) or just climbing DX ladders is fascinating. Some awards can take years to do whilst others can be done in one weekend like the World Radio Magazine 31-on-31 Award using PSK31. Whatever your fancy, this edition of Ham Shack Computers offers several automated solutions to seek out DX stations, using your own computer, connected to a packet radio DX Cluster or via the Internet.



Via the Internet

Modern broadband Internet connections are becoming more popular as the cost connection continues to drop in price. The advantages being that it's possible to have a live continuous Internet connection and a separate dial-up telephone available all on the one broadband line connection. A Telnet DX Cluster connection to WR3D in Baltimore USA, via your Internet browser program, is shown in the adjacent image.

Once connected for the first time you are asked for a username (your callsign) and password (your first name). The last five DX Spots are shown, and once the welcome and date/time rolls through, then the live DX postings follow continuously as your shack session proceeds. Watch for callsigns needed and set your transceiver to the frequency listed and join in the chase.

Via Magazine DX Columns

Most AR Magazines publish first class DX columns with short stories on DX-peditions and activities from rare or unusual countries. However, it can take many weeks for the information to be processed, printed and finally distributed in print. There is nothing worse than finding out that North Korea was active last week! This is fine given plenty of forewarning of DX activity, however, you might forget, be working, on holidays or doing family chores and unavailable to grab the scheduled contacts. In short, magazines these days tend to provide written supplementary information whilst a DX Cluster offers a "real time" dynamic experience at a time when you are in your shack and active on air all at the same time.

Via a Packet Radio Node

Packet Radio also offers exceptional services to RAs, and it's a much cheaper alternative than the Internet - thanks to the many RA system operators (sysops) worldwide. Some bulletin board packet radio networks offer DX Cluster access in addition to the usual messaging, Telnet, and file transfer services (FTP). Some links also have "Ping Pong" or "Wormhole" access using Telnet so that operators worldwide can keyboard chat live - along with other RAs. This technique allows operators to network and track the activity of specific DX stations. The writer has used this system to connect with the USA, Canada, New Zealand, and the UK at the same time, when the group is active on the DX bands waiting for a specific DX station to appear. This is like a huge net spread out ready to "pounce" before the rest of the world realises that the DX station is active!

Packet Equipment

Almost any modern two-metre mobile rig will do fine when connected to a simple BayCom modem. The writer uses a surplus Philips FM92 transceiver and the Blakpak BayCom modem (2) built from a kit for less than $50. The antenna is a ground independent half-wave vertical that gives solid access to a local BBS network with DX Cluster features. The cluster postings are gathered from other BBSs around the world - each with a connection to the Internet. This means that you, the user, can access the postings without the high cost of connections.

```
Packet TTY
Connection  To-Log  DX-Spot  Monitor-Mode  Settings  Edit  Help
ALL de DL4FAY: oh7hdu could u try 29300 ????
DX de DL1DQW:     28009.0  HR1LW                                  1238Z (Honduras, Distrito
ALL de UA6LGR: RK3AZ  via SM0JHF  . 73 poka
DX de W4FOA:      14003.3  TG9AKC       CQn (moved here)          1238Z (Guatemala, Guatemal
DX de EA5WU:      18074.0  HB0/DL3OCH                             1239Z (Liechtenstein)
DX de VE9AA:      50101.0  GD0TEP       539                       1237Z (Isle of Man, Full L
ALL de RK3AZ: 9a1ccy-3 Tnx info. 73 de Arc!
DX de K5YA:        7004.5  EX8F                                   1240Z (Kyrgyzstan)
DX de JA2PJC:      1821.6  N5TW         579 cq                    1240Z (USA - AR,LA,MS,NM,O
DX de M0BCG:      50095.0  VE1ZJ        cq                        1240Z (Canada, Nova Scotia
ALL de RK3AZ: ua6lgr TNX!
DX de G0JHC:      50115.0  VE1YX        59 cq DX                  1240Z (Canada, Nova Scotia
DX de JR4QZH:     50180.1  9M9/7M2VPR   5W+DP DE GET              1240Z
ALL de EA4EKL: RK3AZ info-----> www.qsl.net/s92jhf/  73s
DX de IZ8DPL:     24945.0  EX2T         Vlad                      1242Z (Kyrgyzstan, Talass)
DX de DL5MG:      28021.2  RU3DNN       clg SSB-CQ in CW part ???!1242Z (Russia (EU), Moskov
DX de IZ8DPL:     24945.0  EX2T         Vlad qsl direct           1243Z (Kyrgyzstan, Talass)
DX de JM1IGJ:     50180.0  9M9/7M2VPR                             1237Z
DX de W4CK:       28014.0  OP0GS                                  1243Z (Belgium)
DX de IZ8DQO:     29420.0  GW3PYD                                 1243Z (Wales, Full Licence
DX de K5YA:        7007.0  EY7AF                                  1245Z (Tadzhikistan, Lenin
DX de W4FOA:      14012.6  VU2EN        CQn                       1244Z (India)
DX de AA4XR:      14008.0  4S7CF        Sig building....          1244Z (Sri Lanka (Ceylon))
ALL de RK3AZ: W4CK Hello, Mark!
DX de W4FOA:      14012.6  KP4YD        Same freq as VU2EN        1244Z (Puerto Rico)
DX de IZ7AUH:     29400.0  A61AS        FM                        1247Z (United Arab Emirate
```

The Automated DX Cluster

YPlog by VE6YP (3), the well-known Logging and Control software, includes a Packet Radio Terminal Program as part of its extensive package. With all the other options in YPlog running, connection to any packet or Internet DX Cluster node is possible. The image displayed above shows a typical listing from a packet radio DX cluster. As an example, the posting for KP4YD on 14012.6 was made by W4FOA at 1244Z. By just "clicking" onto this posting, the data is automatically entered into the YPlog logbook ready for you to call, and hopefully, work the station. However, that's not all. YPlog can automatically turn your beam in the right direction, and if you have customised the CW or SSB options and have the "F Keys" displayed on your screen, the process of "spotting" the DX, calling and working the station has been fully automated. Many readers of this series have opted for YPlog as their default Control and Logging program, and will already understand this process.

Typical Applications

For serious operators who seek only DX spots on particular bands or modes, YPlog has options to select a filter that rejects all other spots and only displays stations of specific interest. A good example earlier this year was using WSJT on 50MHz spanning the Atlantic Ocean between the USA and Europe. The DX clusters assisted in establishing many new contacts - and a number of VHF/UHF world records were broken. Moonbounce on VHF/UHF is another application where the DX cluster reins supreme. A single posting to the cluster can establish if the wanted station is QRV and ready to receive the DX call. Confirmation of reception can also be posted where the two stations are using the cluster for simple communication whilst the radio operation progresses. After all, it's not much good calling a station if he's not there! The DX cluster solves this problem for you.

DX clusters MUST NOT BE USED FOR CONTESTING. Many contest rules forbid this, as it would cause havoc especially on the HF bands where a myriad of operators worldwide are ready to pounce on the poor unsuspecting DX station. Use the cluster for exactly what it was intended for - finding DX stations dynamically. Jump in and call the wanted station at the appropriate time and you'll be rewarded many times. Once done, leave the channel clear for others to work the DX.

Summary

This topic has given an overview of setting up and operating through a DX Cluster. Simple gear and the right software on your Ham Shack Computer can lift your country score easily. Many operators have worked 100 countries for a DXCC Award in just one weekend! However, the problem being to get all the return QSL cards won't be easy. Watch the cluster postings for QSL information and be prepared to send your own QSL card by airmail directly.

Ham Tip No. 20

If you don't have a DX Cluster in your area, use Telnet to link to a node that does. Ask your friends for advice on this.

Ham Shack Computers, Part 21- "Morse Code" next month explains a simple way to learn Morse from your computer, using free software.

(1) Ham Shack Computers Web: www2.tpg.com.au/users/vk6pg

(2) Australian Amateur Packet Radio Association (AAPRA) Home Page: www.aapra.org.au

(3) YPlog Home Page: www.members.shaw.ca/ve6yp

73s de Alan, VK6PG/G3PHG

Ian Godsil VK3VP

Contest Calendar November 2002 – January 2003

Nov	1-7	HA-QRP Contest		
Nov	2/3	VHF/UHF Field Day	(CW/SSB)	(Oct 02)
Nov	3	NZ Straight Key Night		
Nov	3	High Speed Club Contest		
Nov	8-10	JA International DX Contest	(SSB)	
Nov	9	Anatolian PSK31 Contest		
Nov	9/10	WAE RTTY Contest		
Nov	9/10	OK/OM DX Contest	(CW)	
Nov	16/17	LZ DX Contest	(CW)	
Nov	16/17	All Austrian 160 Metres DX Contest	(CW)	
Nov	16/17	RSGB 160 Metres DX Contest	(CW)	
Nov	23/24	CQ WW DX Contest	(CW)	
Nov	23/24	CQ SWL Challenge	(CW)	
Dec	6-8	ARRL 160 Metres Contest	(CW)	
Dec	14/15	ARRL 10 Metres Contest	(CW/SSB)	
Dec	21	OK DX RTTY Contest		
Dec	26	Ross Hull Memorial VHF Contest		(Nov 02)
Jan	13			
Dec	28	RAC Canada Winter Contest	(CW/SSB)	
Dec	28/29	Original QRP Contest	(CW)	
Dec	28/29	Stew Perry Top Band Distance Challenge	(CW)	
Jan	4/5	ARRL RTTY Roundup		
Jan	11/12	VHF+ Summer Field Day	(CW/SSB)	(Dec 02)
Jan	19	HA DX Contest	(CW)	
Jan	24-26	CQ 160 Metres Contest	(CW)	
Jan	25/26	REF DX Contest	(CW)	

Results Jack Files Contest 2002

From John Spooner VK4AJS, Contest Manager

Well, the Jack Files Contest has been and gone for 2002. Although there were not a lot of participants, those who did have generally relayed that they enjoyed the evening.

There was a strong showing of club numbers from the RADAR and the Bayside Amateur Radio Club. As well there were several non-VK4 stations that worked the contest and submitted their log sheets.

A big thank you must go to the stations that were not participating in the contest but were kind enough to give out numbers to those who were participating. Also deserving recognition was the effort of Frank VK4CAU who went to the trouble to drive to a location well west of Rockhampton so as to activate 2 shires by moving from the Duringa Shire to the Fitzroy Shire during the course of the evening.

The fact that there were not a great number of stations to collect numbers from meant a lot of stations who have not talked on air for a while took the opportunity to have lengthy chats between the hourly exchange of numbers. Also stations that have not been active on HF for a long time were encouraged to turn up and enjoy the evening.

The results for the 20002 Jack Files Contest are as follows-

VK4 single operator: VK4LMB Mike from Rockhampton with a score of 530 Pts.

VK4 club station: VK4BAR Bayside Amateur Radio Club with a score of 1440 Pts.

VK2 single operator: VK2LCD Chris from Woodburn with a score of 605 Pts.

VK3 single operator: VK3CAT Tony from Melbourne with a score of 90 Pts.

No logs were received from any other states or countries other than those listed above as the winners of their states.

All contacts were made using phone; no logs were submitted using any other modes.

Well there it is in black and white, so a big thanks to all who took part and would you kindly send any suggestions on the future rules or running of this event. Hopefully next year will see a further growth of interest in this event as was experienced this year.

Results Waitakere Sprints 2002

From Alex Learmond ZL1BVK, Contest Manager

SSB Sprint

Call	Points	Certicate
VK5NJ	56	1st Overall
VK4SN	48	Second VK
VK3WWW	43	Third VK
VK4FJ	41	
VK2GJC	40	
VK3DYL	36	
VK3JS	35	
VK2LCD	24	
VK7JAB	16	
VK3BSE	15	
VK7LUV	7	
ZL2CD	52	Highest ZL2
ZL1PC	47	Highest ZL1
ZL1ALZ	46	
ZL1BVK	46	
ZL2TW	46	
ZL3DC/1	46	
ZL1BYZ	45	
ZL2ADN	44	
ZL1DK	42	
ZL1KB	40	
ZL1OS	40	
ZL2AJB	40	
ZL1WT	34	
ZL1TW	31	
ZL4IM	31	Highest ZL4
ZL2MD	29	
ZL1ACZ	28	
ZL1AUW	25	
ZL4AR	21	
ZL4GU	20	
ZL1NE	19	
ZL1WI	17	
ZL3GL	14	Highest ZL3

Check Logs gratefully received:
ZL1AKY, ZL1ALK, ZL1MW

CW Sprint

Call	Points	Certificate
VK3JS	33	1st Overall
VK5NJ	18	2nd VK
VK4SN	16	3rd VK
ZL1ALZ	23	1st ZL1
ZL1AIH	22	
ZL2AJB	22	1st ZL2
ZL1DK	21	
ZL1PC	21	
ZL1TW	21	
ZL2ADN	20	
ZL1BYZ	19	
ZL2CD	19	
ZL2AUB	18	
ZL2AVL	17	
ZL1WI	15	
ZL2TW	14	
ZL1ACZ	12	
ZL4IM	10	1st ZL4
ZL1WT	7	
ZL1AUW	6	
ZL1BVK	5	

Check log gratefully received:- ZL2MD

Sprint Champion for 2002:- VK5NJ 148 Points

Combined scores:

Call	CW	SSB	Con-tacts	Pts
VK5NJ	18	56	74	148
ZL2CD	19	52	71	142
VK3JS	33	36	69	138
ZL1ALZ	23	46	69	138
ZL1PC	21	47	68	136
VK4SN	16	48	64	128
ZL1BYZ	19	45	64	128
ZL2ADN	20	44	64	128
ZL1DK	21	42	63	126
ZL2AJB	22	40	62	124
ZL2TW	14	46	60	120
ZL1TW	21	31	52	104
ZL1BVK	5	46	51	102
ZL1WT	7	34	41	82
ZL4IM	10	31	41	82
ZL1ACZ	12	28	40	80
ZL1WI	15	17	32	64
ZL1AUW	6	25	31	62

Results NZ Memorial Contest 2002

From Stan White ZL2ST, NZART Contest Co-ordinator

VKs only

VK2CZ	405 points
VK2LCD	366 points

Results John Moyle Field Day 2002

From Eric Fittock VK4NEF Contest Manager

Portable, Six Hour

Stn.	S/M OP	Mode	Band	Points	
VK5SR	Multi-op	All Mode	All Band	1618	*
VK2BOR	Multi-op	All Mode	All Band	642	*
VK3APC	Multi-op	All Mode	All Band	628	
VK2BV	Multi-op	All Mode	HF	62	*
VK3YE	Single	All Mode	HF	146	*
VK3BJM	Single	All Mode	VHF/UHF	872	*
VK5NJ	Single	CW	HF	62	*
VK4SK	Single	CW	HF	46	
VK3DPW	Single	Phone	All Band	588	*
VK2IRP	Single	Phone	HF	62	*
VK2GR	Single	Phone	HF	58	*
VK3BD	Single	Phone	HF	48	
VK5AVQ	Single	Phone	VHF/UHF	292	*
VK4IF	Single	Phone	VHF/UHF	152	*
VK3VP	Single	Phone	VHF/UHF	56	

Portable, 24 Hour

Stn.	S/M OP	Mode	Band	Points	
VK3ER	Multi-op	All Mode	All Band	7492	*
VK4WIS	Multi-op	All Mode	All Band	5020	*
VK3CNE	Multi-op	All Mode	All Band	3938	*
VK2SRC	Multi-op	All Mode	All Band	2630	
VK4BAR	Multi-op	All Mode	All Band	1952	
VK2HZ	Multi-op	All Mode	All Band	1662	
VK2ADX	Multi-op	All Mode	All Band	1472	
VK3GH	Multi-op	All Mode	All Band	1132	
VK3EK	Multi-op	All Mode	All Band	812	
VK5BAR	Multi-op	All Mode	HF	598	*

VK2IBT	Multi-op	All Mode	HF	418	
VK5ARC	Multi-op	All Mode	VHF/UHF	4090	*
VK3ALT	Multi-op	All Mode	VHF/UHF	1840	
VK5MX	Single	All Mode	All Band	392	*
VK4EV	Single	All Mode	HF	216	*
VK5AIM	Single	All Mode	VHF/UHF	396	*
VK3JS	Single	CW	All Band	166	**
VK4VG	Single	Phone	HF	184	*
VK3WB	Single	Phone	HF	120	
VK5UE	Single	Phone	VHF/UHF	340	*
VK2KC	Single	Phone	VHF/UHF	40	

HOME, 24 Hour

VK4WIL	Multi-op	All Mode	All Band	304	*
VK3DBQ	Single	All Mode	All Band	195	*
VK3ATN	Single	All Mode	All Band	140	*
VK3KCD	Single	All Mode	All Band	101	*
VK2TG	Single	All Mode	All Band	53	
VK2EA	Single	All Mode	All Band	43	
VK2GJ	Single	All Mode	All Band	25	
VK2IGS	Single	All Mode	All Band	20	
VK2XIE	Single	All Mode	All Band	15	
VK2AAC	Single	All Mode	All Band	8	

HOME, 6 Hour

VK3KTO	Single	All Mode	All Band	107	*
VK2MRV	Single	All Mode	All Band	87	*
VK5AR	Single	All Mode	All Band	52	*
VK3VD	Single	All Mode	All Band	12	

SWL, 24 Hour None

Check logs : VK5RG VK5GN VK4PJ VK3CKD

* = Certificate Winners

* * = Presidents Cup Winner

Comments from 2002 JMFD

An enjoyable contest again despite poor Wx and propagation. Whole team eaten alive by mosquitoes this year but no major equipment failures. *VK5SR*

Trying to find a clear hill near the city is not easy now, my first field day for a long time. Some good VHF conditions, but more on SSB would have been nice. *VK5AVQ*

Most embarrassing moment, (deleted) trying to adjust the time on a digital volt meter. *VK3ER*

We had SSB gear for 2.4, 3.4 and 10GHz but propagation from our location was not good. Our score doesn't reflect too much on the size of the station but, for all of our operators it was the first time in a contest. But the social side of the weekend was really good for our club. *VK3EK*

Power was supplied totally from the sun, with 4x68 W panels on the shack, which was a half size Austin bus converted to a mobile home. Storage was 480Ah, and it got down to 10.9 V before the sun started to top up the batteries on Sunday morning. *VK5ARC*

Rules Ross Hull Memorial VHF-UHF Contest 2002 - 2003

from John Martin (VK3KWA), Contest Manager

The next Ross Hull Contest will be held between December 26, 2002 and January 12, 2003. The rules are unchanged from last year.

The contest is open to all amateurs, and all operating modes are permitted. Traditionally most activity has been on SSB or CW, although there has also been some FM activity. During the last year there has been quite an upsurge in the use of digital modes, and it will be interesting to see what effect this will have on contest activity this year.

But no matter what modes you prefer to use, summer is the time for DX, so give it a try and see what you can do. And please send in a log, so I can send you a nice certificate in return.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Thursday December 26, 2002 to 2400 UTC Sunday January 12, 2003. In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 13.

Sections

A. Best 7 UTC days nominated by the entrant.

B. Best 2 UTC days nominated by the entrant.

Entrants may submit logs for either or both sections. The nominated UTC days need not be consecutive. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General Rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest activity is permitted below 50.150 MHz. Recognised DX calling frequencies must not be used for contest calls, exchanges or liaison. Suggested procedure is to call on 0.150 on each band, and QSY up if necessary. All rulings of the contest manager will be accepted as final.

Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Contacts made on recognised calling frequencies will be credited if the entrant provides an explanation of why it was not practical to use another frequency. Otherwise such contacts will be disallowed. Persistent unjustified use of calling frequencies or false log entries will lead to disqualification.

Contest Exchange

RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 - 199 km: 2 points, etc).

For 6 metres only, contacts below 1000

km: as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Logs

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time
- Station location (if operating portable)
- Specific FREQUENCY (not just band) and callsign of station worked
- Approximate location or grid locator of station worked
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed, including the band multiplier.

Separate scoring columns for each band would be helpful.

Cover Sheet

Logs must be supplied with a cover sheet containing

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

Date	6 m	2 m	70 cm	23 cm	etc
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
etc.					
Total	xxx	+	xxx	+	xxx
+	xxx	+	xxx	=	xxx
					(GRAND TOTAL)

A sample cover sheet has been posted on the VK-VHF e-mail reflector, and copies can also be obtained from the e mail address given below

Deadline

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, Office 97 RTF, DOC, XLS or MDB. If you use Office 2000, please save the files in Office 97 format.

Logs must be received by **Friday, February 7, 2003**. Early logs would be appreciated

Note on Calculating Distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a computer program, which can be obtained by sending an e-mail to the address given above.

Announcement

Ian Godsil VK3VP

Some months ago I had my first warning that being a Senior Citizen brings with it a decline in one's abilities to do things as readily as previously. My wife also finds the same thing happening.

Because of this, I am sorry to announce that I must relinquish my position of Federal Contest Co-ordinator as from next year's WIA AGM.

There are some very able people out there who may like to consider taking over this position.

A Job Description is attached so that you can consider offering your services to the Federal President, Ernie Hocking VK1LK, via Federal Office, or president@wia.org.au

I shall be most willing to assist the new incumbent in any way that I can, and certainly hope to continue as a participant in contests

Good contesting and 73

Ian Godsil VK3VP

Federal Contest Co-ordinator
Job Specification

Applicants for the position of Federal Contest Co-ordinator are asked to consider the following guidelines —

1. To report frequently to the member of the Federal Executive appointed to oversee Contest activity and to keep him fully informed, especially of budgetary costs;
2. to liaise frequently with the Federal Office;
3. to write an Annual Report in February each year for presentation at the WIA's Annual General Meeting;
4. to liaise closely with the NZART Contest Co-ordinator;
5. to liaise closely with other Contest Co-ordinators and Managers, both in Oceania and world wide;
6. to produce a monthly information column in "Amateur Radio";
7. to organise for production and forwarding of trophies at various times each year as appropriate;
8. to keep accurate records of trophy winners and to arrange for engraving of Perpetual Trophies;
9. to see that information is available on the World Wide Web;
10. to oversee the supplies of available certificates and to organise replacements when necessary;
11. to write and post certificates on behalf of individual Contest Managers;
12. to arrange a speaker for the annual Remembrance Day Contest and to produce and distribute tapes of the speech for each Division and to arrange for audio to be available on the Internet;
13. to be available via telephone, postal mail and e-mail

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Some items in this column have previously been broadcast on 'QNEWS'. If you have interesting news from overseas, please send it to the above e-mail address or snail mail.

ITHE

The International Travel Host Exchange, or ITHE, is a programme administered by the German national society, DARC & ARRL. It provides radio amateurs with the possibility of free accommodation with other amateurs around the world in exchange for you offering accommodation to overseas Amateurs. Most members are in Europe, but there are also amateurs registered in Australia, Canada, India, Indonesia, Japan, Malaysia, New Zealand, Syria, Thailand and the USA. If you would like further information, please contact Thilo by e-mail: dl9kce@darc.de

In VK the WIA Coordinator is John Miller VK3DJM e-mail ithe@wia.org.au

(rsgb/qnews)

Sweden Hamvention

A major new European amateur radio event will take place in Gothenburg for the first time in April next year. The 'Scandinavian HamVention 2003' will be a big 'ham-fest' where Scandinavian and other European radio amateurs can get together. A traditional Scandinavian amateur radio dinner will be held and there will also be a special ladies' program. The Swedish national amateur radio organisation, the SSA, will hold its annual meeting at the same time. Further details are on the Scandinavian HamVention website.

(qnews)

Asteroid followers

Amateur Radio operators listened out for scientists bouncing radio signals off asteroid 2002 NY40 as it did a "flyby" of Earth August 15-20. 2002 NY40 asteroid came close enough to Earth that it was said to be visible to sky watchers using binoculars. Arecibo Radio Observatory in Puerto Rico "pinged" the satellite with radio signals as it approached Earth. Transmitting about 900 kW with 73 dB of gain towards the asteroid with received signal centered at 2380.0 MHz. The signal had a bandwidth of up to 20 MHz.

(sourced from AMSAT.ORG)

5 MHz: Go – No Go!

You may recall in the September "AR" I wrote about the 5 MHz experiment. Now a couple of months underway I thought you might like an update.

The purpose of the allocations were for experimental propagation purposes and antenna investigations aimed at improving the understanding of Near Zenithal Radiation or NVIS (Near Vertical Incidence Skywave) communication via the ionosphere. Quite a number of U.K. stations are taking part in these experiments.

In the USA the situation is somewhat cloudy. The National Telecommunications and Information Administration (NTIA) has recommended that the FCC not grant an ARRL petition for a domestic-only, secondary Amateur Radio allocation at 5 MHz. The NTIA regulates radio spectrum allocated to the U.S. Federal government. NTIA said Federal agencies are making extensive use of HF for emergency services and believes the Commission's current proposal does not adequately provide for protection from harmful interference to these critical government operations primary in the band. *(They obviously are not affected by the S.E. Asia chit chat that we endure on HF!).* One objection was from The Home Plug Powerline Alliance (HPPA) who were concerned about interference with their 5 MHz appliances! The ARRL continue their battle to secure use of these frequencies.

For those of you interested in Short Wave listening and the U.K. 5 MHz scene, the frequencies are 5260, 5280, 5290, 5400 and 5405 kHz. Each frequency has a 3 kHz bandwidth channel. For operators to use these frequencies they must have a full unrestricted licence and must apply for special permission. Reports on their findings must be regularly sent to the RSGB and the RA. It is expected the time period for use of this band to conduct these experiments will be four years Already reports have been received from New Zealand.

(RSGB Sept RadCom and ARRL N/L V21/25)

30 metre DXCC

For you DXCC enthusiasts the ARRL DXCC Desk has announced the addition of a 30-metre (10-MHz) single-band DXCC award. Applications for this award will be accepted starting October 1. The 30-metre DXCC certificates will be dated but not numbered. For more information visit dxcc@arrl.org

(ARRL N/L V21/25)

continued next page

Amateur Radio
By subscription with your WIA membership,
or now in your newsagent

Silent Key

Lieutenant-Colonel Sir Evan Nepean, Bt

From The Weekly Telegraph Issue No 557 27/03/02

Renowned amateur radio operator and member of the British Political Mission to Tibet Lieutenant–Colonel Sir Evan Nepean, 6th Bt, who has died aged 92, was one of the world's best-known operators of amateur radio, call sign G5YN; he was also the last surviving member of the British Political Mission to Tibet in 1936.

Radio was Nepean's lifelong passion - he was to become the longest serving member of the Radio Society of Great Britain, notching up 75 years' membership - and it was as a subaltern serving in the Peshawar District Signals on the North West Frontier of India that he went on the mission to Tibet.

It was in the summer of 1936 that Nepean and a fellow wireless expert in the Royal Signals, Lt. Sidney Dagg, joined the mission led by B J (later Sir Basil) Gould. Among other members of the party was Hugh Richardson, who would some months later become Britain's last diplomatic envoy in Lasha.

The mission had been proposed by the government of Tibet, then under Regency between Dalai Lamas. They wanted Britain to mediate for the return of the Panchen Lama, the second most senior religious leader in Tibet, who had fled to China in 1923 after falling out with the13th Dalai.

Nepean set up his tent, sharing it with the transmitter and the receiver, in the Deyki Lingka garden, the mission's base. The aerial was supported on a 40ft mast, and regular contact was kept up with India on the 30-metre wave. Contact was also made with amateurs and Nepean's then call sign, AC4YN, became known around the world - AC4 being for Tibet, YN being two of Nepean's initials. He helped to film the mission with a 16 mm cine camera, and played football as a member of the "Mission Marinots" team against "Lhasa United".

Nepean in the fur-lined Afghan coat which he wore on the Tibet mission

Beyond Our Shores ***continued***

Vintage 1AW QSL brings record price

How valuable is (or will be) your QSL card?

In the USA an old 1AW QSL apparently set a price record for the sale of a single QSL card. A vintage Hiram Percy Maxim 1AW card recently sold for $US 2,125 on the eBay auction site. The winning bidder was a Californian and is a very serious QSL collector. The seller pledged to donate half of his sale commission to the W1AW Endowment Fund. The 1AW card appears to verify reception of 9CTR on a wavelength of 193 metres rather than a two-way contact. "You were calling another 9," Maxim wrote in the card's "Remarks" section. Although the card proclaims "American Radio Relay League Station 1AW" across the top, the now-famous call sign was Maxim's own personal call sign at the time, not the League's, and Maxim operated from his home on Hartford.

Until the 1AW card sale, it is believed the highest known price paid for a single QSL card was more than $US 1,100 for an AC4YN QSL from the Tibet DXpedition of Sir Evan Nepean, G5YN, who died last March at age 92.

(ARRL N/L V21/37)

Argentina: LU – 136 kHz allocation

You may recall reading that Brazil was about to allocate a small band segment on 135 kHz. Roberto Beviglia, LU4BR, President of the Argentinean National Amateur Radio Society, has told the RSGB that, as a result of a rule proposal made to the Argentine radio regulatory department by the RCA, a portion of the 136 kHz band has been allocated to the amateur service on a secondary basis in Argentina. The segment of 135.7 to 135.8 kHz will be coordinated by the RCA until it is finally assigned on a primary basis in a year's time. These are the same frequencies that were sort by Brazil.

(gb2rs news)

If you have interesting overseas news, please share it with us.
Email to
davpil@midcoast.com.au
or mail to VK2AYD

ar

Spotlight On SWLing

by Robin L. Harwood VK7RH.

Some unusual listening!

The year is rapidly drawing to a close and shortwave is still there. Radio Finland did indeed drop programming in English, German and Spanish on the 27th of October yet Finnish and Swedish continues along with Russian. It is unclear whether they will continue with the weekly news bulletin in classical Latin. It was the first and only radio station to do so. The Vatican Radio only has Liturgical broadcasts in Latin

Yet another station has ended their foreign language programming. Radio Austria International (ROI) has dropped programming in Esperanto and Arabic. Radio China International remains one of the very few broadcasting programming in the artificial language of Esperanto.

The *Bayernrischen Rundfunk* in Munich has been a stalwart on 6085 kHz for many decades. This regional station is apparently going to leave shortwave on December 31st. They say it is only temporary but many are wondering if it will be indeed permanent. The best time to hear this station is at 2000 UTC onwards. Don't be confused though as DW from Cologne is on 6075.

Incidentally I came across Swiss Radio International (SRI) from Berne on 13645 kHz at 2130Z. They were broadcasting in the Swiss-German dialect. I assume that SRI would be doing 30-minute blocks in Italian and French either before or after this German segment. Presumably this was directed to Africa as they have abandoned most of the other areas. There were frequent plugs for their online presence at www.swissinfo.org.

The Islamic holy month of Ramadan commences on the 6th of November. During the daylight hours, believers fast to sunset. Many Islamic broadcasters extend their programming to accommodate this and it may be possible to hear stations that are not normally heard. Many Indonesian regional shortwave stations run all night programming during Ramadan.

There is some confusion when daylight saving time commences in Brazil. I have seen that this will commence on the 3rd of November and go through till February 15th. This may mean the Brazilians may sign on earlier at 0800Z, but as we are in daylight I do not expect that many Brazilian stations would be heard here in southeastern Australia. The Brazilians mainly use the 90 and 120 metre tropical allocation.

Tensions continue in the Middle East and this is reflected on shortwave. I am hearing plenty of bubble jamming stations pop up on odd channels where Clandestines operate. There is a cat and mouse game with the Clandestines frequently changing channels to avoid these bubble jammers. It is easier hearing the jammers than the Clandestines. You can hear them often within aeronautical and maritime allocations e.g. 8850, 12350 kHz at 1300Z or later at 1900Z. It is believed that both Iran and Iraq may be the source of these jammers.

I recently received an email from a trusted friend on Australian marine HF frequencies. There was an attachment that immediately alerted my antivirus software. It was the Bugbear virus, which was quickly quarantined. Unfortunately this virus altered my friend's email address and I was unable to retrieve the current one.

Therefore I will no longer accept attachments with emails unless by prior arrangement.

Well that is all for this month. Keep listening and 73.

Silent Key

Ron Fisher VK3OM

Vale Arie Bless, one time VK2AVA

Arie Bless VK2AVA, one of the real characters of Australian amateur radio passed away recently. Arie was born in the Netherlands but before migrating to Australia spent many years in Indonesia operating under the call signs PK4DA and PK2DX. He then settled in Springwood just west of Sydney. In the early 1960s he opened a business of importing and selling amateur radio equipment. Sideband Electronics Engineering became well known for their range of American transceivers. The first of many advertisements in "Amateur Radio" appeared in July 1964 issue announcing the arrival of the Galaxy Range of SSB transceivers. That same issue of "AR" had a story of an SSB convention held in Hamilton Victoria where Arie gave a talk on "recent trends in the development of SSB transceivers". He also had a new Galaxy Transceiver on display as a typical modern product from the USA.

At his Springwood location Arie built big antennas including a full size three element 40 metre beam which he used for daily skeds with the UK on long path In our afternoons. All were welcome on 7095kHz and many amateurs were initiated into the delights of 40 metre DX. Thanks Arie for enriching amateur radio in Australia

Below is a translation from Dutch (*Electron* September 2002)

Arie was a well known and respected radio amateur for over 70 years and had many friends all over the world. He lived for many years in Indonesia as PK4DA/PK2DX. After having lived for some time in Ecle, Arie went to the spacious Australia, where his hobby could really come into its own. Building antennas was his reason for living. His home as well as his farm became a real antenna field. Arie was the daily beacon for many. We will remember Arie as a great friend, who was there when he was needed, even if he had to take a plane from VK to PA! Arie we hope that you have now found peace. Many will miss you. We wish that his children find strength in this.

Verroen family (PAOAVN, PDOMIJN)

HF Predictions

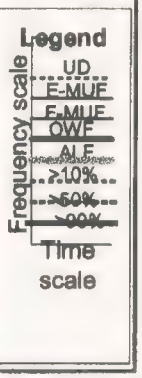
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

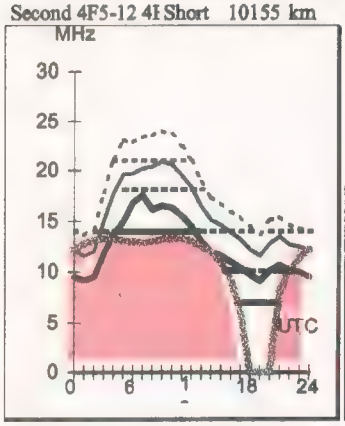
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

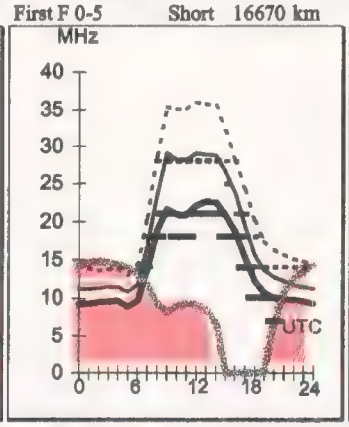
November 2002
T index: 82



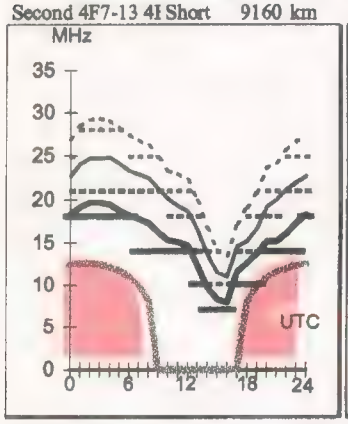
Adelaide-Capetown 226
Second 4F5-12 4E Short 10155 km



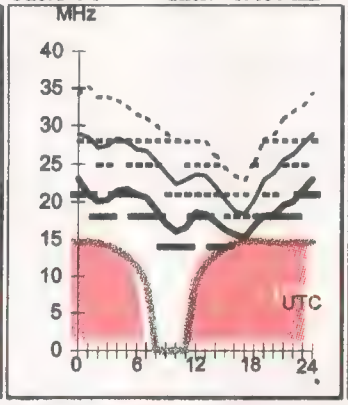
Brisbane-Dublin 335
First F 0-5 Short 16670 km



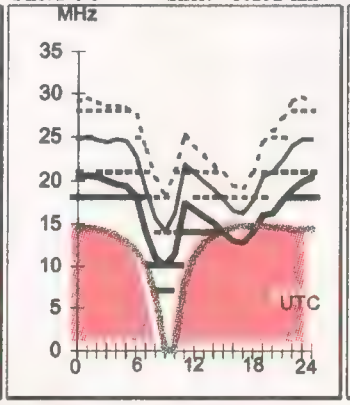
Adelaide-Honolulu 57
Second 4F7-13 4E Short 9160 km



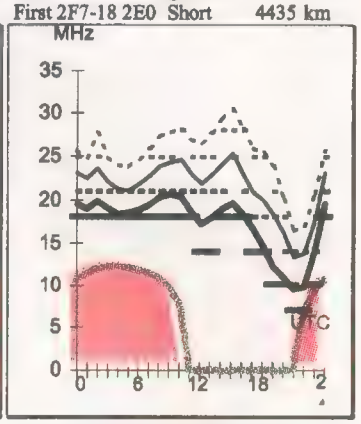
Brisbane-Lima 122
First F 0-5 Short 13056 km



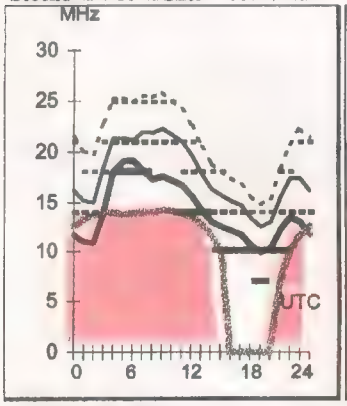
Canberra-Barbados 123
First F 0-5 Short 16232 km



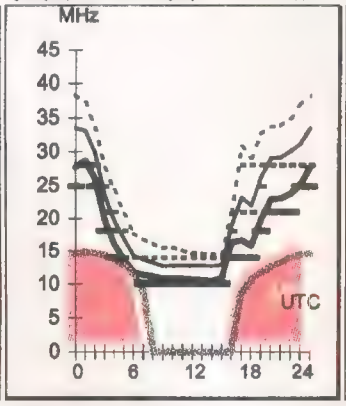
Darwin-Bangkok 310
First 2F7-18 2E0 Short 4435 km



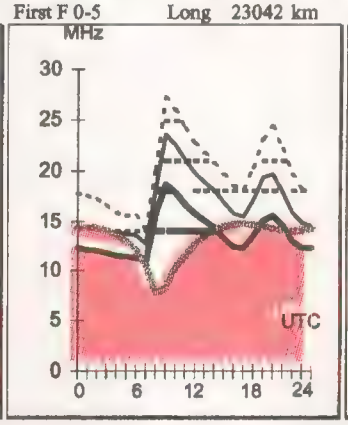
Adelaide-Lusaka 246
Second 4F4-10 4E Short 10787 km



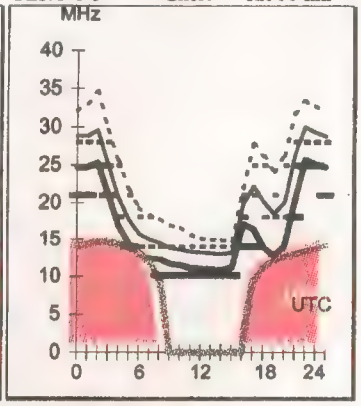
Brisbane-Seattle 44
Second 4F2-6 4E Short 11846 km



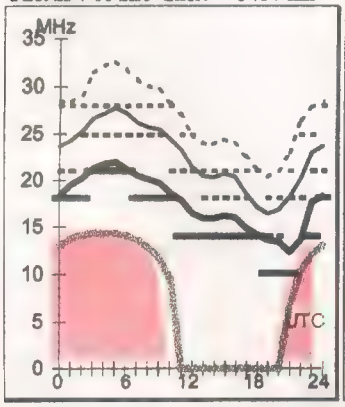
Canberra-London 136
First F 0-5 Long 23042 km



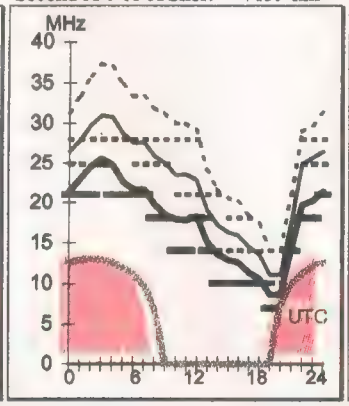
Darwin-San Francisco 54
First F 0-5 Short 12316 km



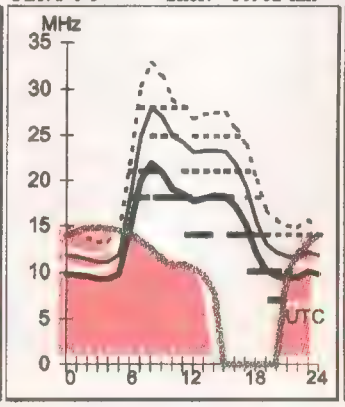
Adelaide-Singapore 311
First 2F4-10 2E0 Short 5414 km



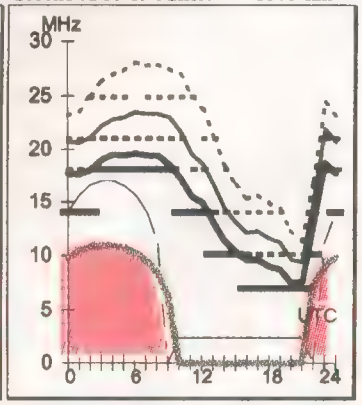
Brisbane-Tokyo 348
Second 3F6-11 3E Short 7159 km



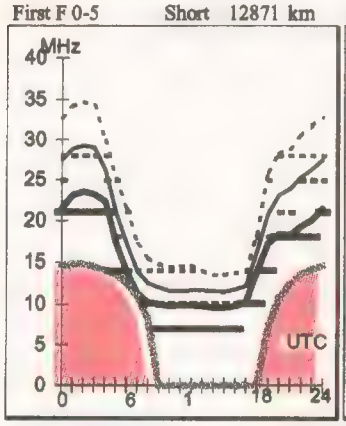
Canberra-London 316
First F 0-5 Short 16982 km



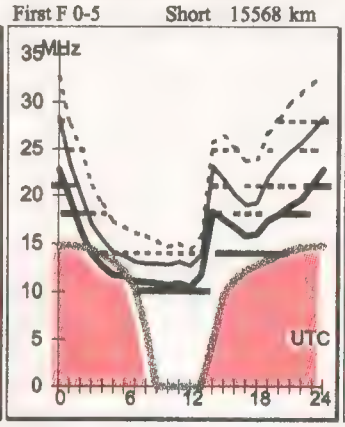
Darwin-Seoul 356
Second 3F10-19 3 Short 5575 km



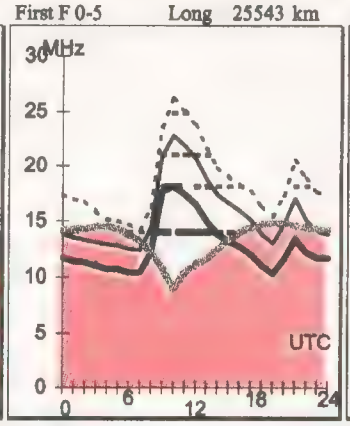
Hobart-Anchorage 28
First F 0-5 Short 12871 km



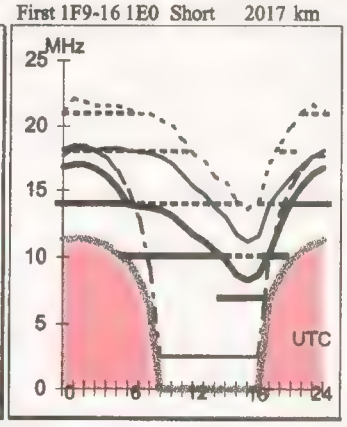
Melbourne-Chicago 67
First F 0-5 Short 15568 km



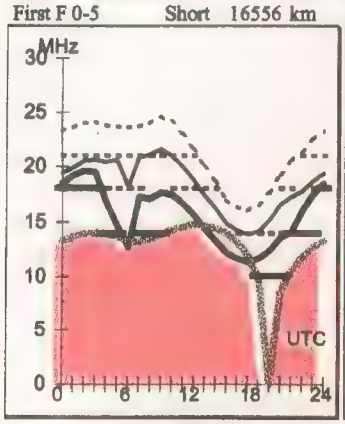
Perth-London 133
First F 0-5 Long 25543 km



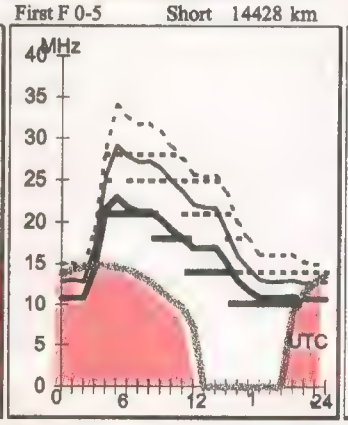
Sydney-Invercargil 139
First 1F9-16 1E0 Short 2017 km



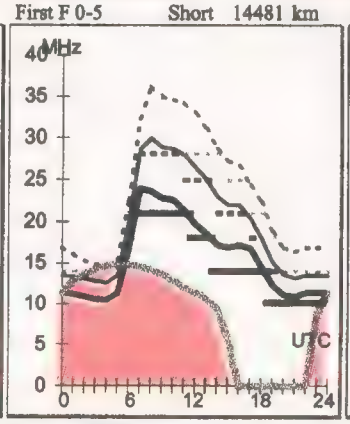
Hobart-Dakar 209
First F 0-5 Short 16556 km



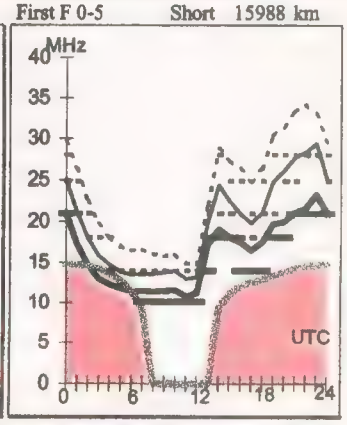
Melbourne-Moscow 316
First F 0-5 Short 14428 km



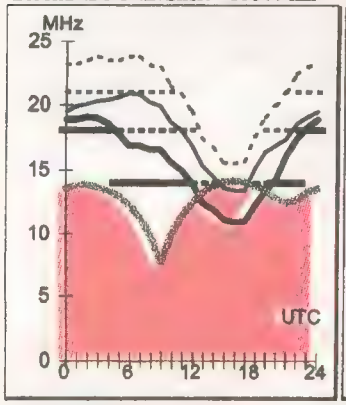
Perth-London 313
First F 0-5 Short 14481 km



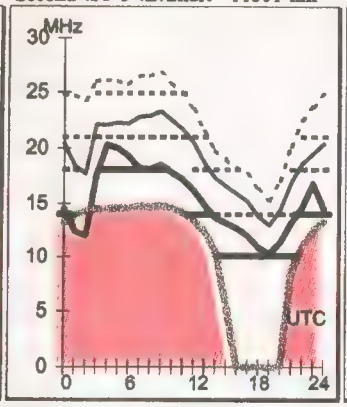
Sydney-New York 66
First F 0-5 Short 15988 km



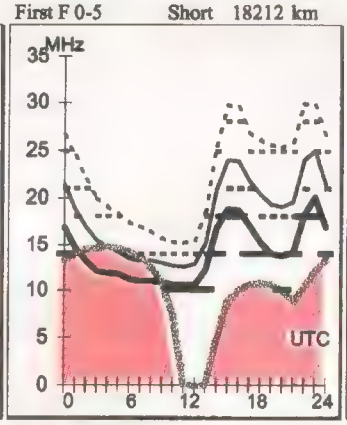
Hobart-Montevideo 161
Second 4F6-8 4E(Short 11044 km



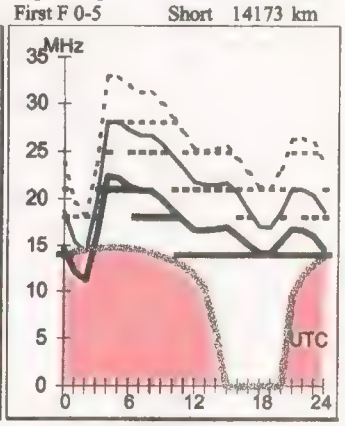
Melbourne-Nairobi 258
Second 4F3-8 4E(Short 11501 km



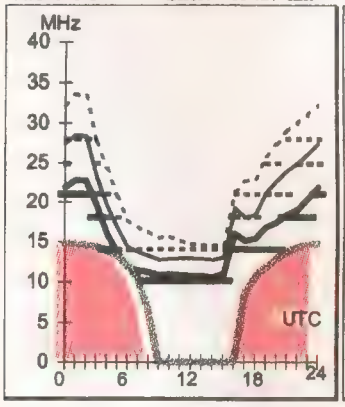
Perth-Ottawa 30
First F 0-5 Short 18212 km



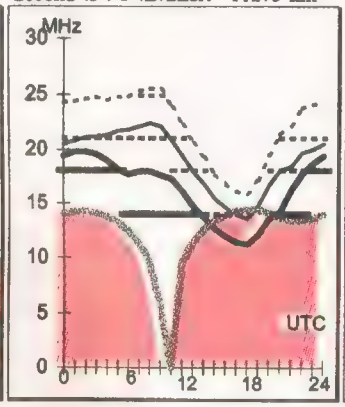
Sydney-Tel Aviv 287
First F 0-5 Short 14173 km



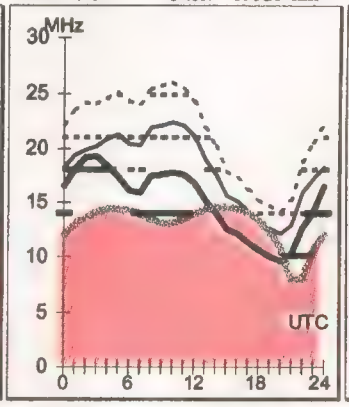
Hobart-Vancouver 49
First F 0-5 Short 13427 km



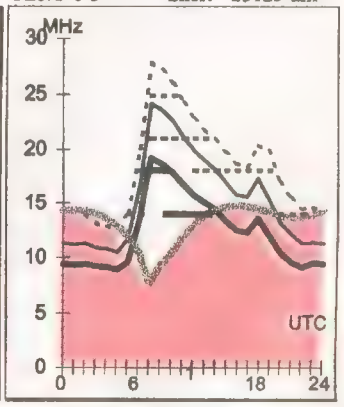
Melbourne-Santiago 150
Second 4F4-8 4E(Short 11273 km



Perth-Rio de Janeiro 203
First F 0-5 Short 13523 km



Sydney-St Petersburg 143
First F 0-5 Short 25123 km



VHF - UHF.. AN EXPANDING WORLD

David K Minchin VK5KK
Postal: 10 Harvey Cres, Salisbury Heights, SA, 5109 Phone: 0403 368 066 AH ONLY
E-mail: tecknolt@ozemail.com.au Web page: http://members.ozemail.com.au/~tecknolt
All times are in UTC.

50 MHz

Bevan VK4CXQ reports ... A quick look at some of the 6 metre activity from Townsville from mid Sept to mid Oct. Activity increased somewhat during the period but was rather spread around with only Japan standing out as the main source of any sustained activity. HK6SX was heard on a regular basis with some 599 signals received. Four other KH6/7 stations were working the Pacific and Japan in some good conditions. Other stations briefly heard were VR2s, V73, VK8, FK8 and 5W1SA. Some VK stations also qualified. The 5W1 station was worked on 6Oct but has not been heard since. In all activity has been down on this time last year but a clearer picture should emerge by mid November ... Bevan VK4CXQ Townsville

Both the ZL3TEN 28.228 MHz and ZL3SIX/B 50.040 MHz are back on air due to major overhaul just in time for the F2/ES season!!! Reports more than welcome at service@mycom.co.nz ... Mike Foubister ZL3TIC

Bob ZL3TY reports .. ZL7C Chatham Is DXpedition will have stations operating on 6 m and 2 m. I have been asked to set up the VHF stations, which will use an FT100 kindly loaned by Duncan ZL3JT.

On 6 m we will have a 5-element yagi and will operate on 50.117 as much as possible. A CW beacon will operate probably on 50.117.6 zero beat. I hope to have WSJT operational so if you want to try Skeds on this mode I will try to fit them in. FSK441 would result in almost certain QSO's at the distance between ZL and ZL7 on 6. If you want to try this it would be advisable for you to have prior experience of using this mode before any Skeds. This will greatly enhance your chance of success.

Unfortunately the distance from ZL7 to VK probably rules out this possibility, however VK is a much better prospect on other propagation modes.

For 2m we will be using the same FT100 with an amp, about 150W out to a 12-element yagi horizontally polarised. Random calls will be put out on 144.1 and WSJT Skeds can be arranged. Since the FT100 will probably reside primarily on 6m, 2m operations will probably be infrequent, more probable if conditions seem favourable. We depart for ZL7 on 15 October and return 28 October 2002 ... Bob ZL3TY

144 MHz and above

Mirek VK3DXI/VK2DXI/VK6DXI reports on his Dxpedition to 9M8 East Malaysia ... After operation as 9V1XE and 7X0DX on AO40, I have managed to arrange another AO40 mini DXpedition, this time to Sarawak, East Malaysia as 9M8DX. As during my previous trips over there, Festus 9M8FH made all local arrangements. Allan 9M8MA made club room available to me and arranged permit with hotel for all the "roof work". I have stayed at Holiday Inn Kuching. On last floor of the hotel is a clubroom of 9M8RC, which I have operated from.

I have traveled from Singapore to Kuching Sarawak on 26.08.2002 and returned to Singapore on 29.08.2002 My main purpose of the travel was to activate 9M8 on AO40 and give a "show and tell" to local 9M8's on satellite UO14 and AO40 operation Due to weather limitation (big tropical storms) and high squint angles during some parts of AO40 visibility, actual operation on satellite was on 28.08 between 02:00 - 02:30, and 14:50-15:30, and 20:15 till 21:30, so in reality few hours only.

Some 32 QSO were made on AO40, with 4 continents and following countries: DL, I, SM, YB, OE, ZS, JA, VK. From VK I worked: VK1VI (both CW and SSB) and VK3KOS As the operation was a last minute arranged event, not much publicity was possible. It was announced though via AMSAT web bulletin as well as on AMSAT e-mail bulletin board and W3UR DX bulletin. I have done some HF as well, including RTTY and PSK31, and CW/SSB

Rig used: AO40: Downlink: K5GNA 2" grid antenna with AIDC down converter and FT817 as a receiver. Uplink: home made 2 x 11 element yagi's as per WA5VJB and IC706MkIIG plus Mirage D1010 amplifier Alinco DM330-MV switching supply PC notebook Compaq Armada. The entire station fits in normal luggage within 20 kg airline limit. On HF I have also used club station's Hy-Gain Explorer for 20,15 and 10 m ... Mirek VK3DXI/VK2DXI/VK6DXI

Mike VK4MIK reports ... you may be interested in the events of late last week and weekend (27 – 29th of September 2002). The Hepburn site at www.iprimus.ca/-hepburnw/dx/dx.htm indicated that ducting was good plus the prevailing weather pattern was also indicating 2 meters would be under the influence of ducting. John VK4JKL heard P29 stations on the VK4RCA repeater and notified all on packet. I had been trying to make a contact with Felix VK4FUQ via VK4RAT repeater, in Townsville, for some time and on the Saturday was able to make this contact plus later in the day, when the ducting was on the decline, with Gavin VK4ZZ. Mat VK4HAM also was able to get into Townsville repeater from his QTH in Cairns - showing that limited novices can also join in the dx offered by ducting.

The Tableland Radio Group has established a repeater on the eastern edge of the Atherton Tableland, 60 kms, to the south of Cairns. This provides access from Innisfail, to the south, most of the tablelands and into Cairns. Details are at ACA register of Radio-communications Licences at site ID441009. There is a bit of interest in Bill Hepburn tables as they seem to be very precise ... 73s Mike VK4MIK

Tim VK2ZTM reports ... With some changes last weekend (28/29th of September 2002) to antennas for the packet system it has been possible to return the VK2RSY 2 metre beacon - 144.420 MHz - to service. There is still some fine-tuning to be done to keep these various transmitters from fighting with each other. Also yet to be carried out is the relocation of the VHF and UHF

beacon antennas to an elevated mounting for improved coverage, a project still in the planning stage.

The Dural, NSW system now supports a complement of 5 beacons, 6 repeaters, 2 Morse training and 2 packet transmissions that are in continuous service. Some beacons and the Morse system are off air during the broadcast periods. In the broadcast format 3 of the repeaters with up to a further 10 transmitters are in use. Add to these the regional and remote relays and on some mornings a further 15 or more transmitters are in use. This is a real effort and we thank all involved in providing this facility ... Tim Mills VK2ZTM for the WIA Dural Committee

Digital DX

Rex VK7MO reports ... I have now received the advice below from Glenn, VK4TZL, that he worked FK8CA on FSK441 - so that is very pleasing and at least we know Alain was on. I don't have an explanation for the weak signals. I think at this stage we should wait and see if Alain sends us a snail mail report and find out what he received and what he would like to try next. Wayne VK2TQP also copied one ping from Alain.

Further ... I have received advice from Glenn, VK4TZL, that we will have two FK8 stations operating next weekend (26/27th of October 2002). ALAIN FK8CA and Patrice FK8HA On the Saturday the FK8 sked will be in the hour before the activity session but on the Sunday with the switch to daylight saving in Vic/NSW it will be at the same time. Thus for the Sunday I suggest NSW stations abandon the Type B and try for FK8. FK8 will TX in the first period.

It is pleasing to see Phil, VK3YB, getting a group going each Thursday night from 0830 to 0900 local (Vic/NSW) time on 144.225. Liaison via http://www.chris.org/cgi-bin/jt44talk.may There may also be some VFSKCW on 144.220 at the same time ... Rex, VK7MO

A new release of WSJT is the first to include the EME Echo mode. This mode allows you to detect and measure your own lunar echoes, even if they are far too weak to hear. The mode can be highly useful for evaluating your station performance, even if you prefer to use CW rather than JT44 for your EME QSO's. If you are a present user of WSJT with no interest in detecting and measuring your EME echoes, you will find no significant advantages to upgrading to WSJT Version 2.3.0. With the exception of a minor bug fix, the FSK441 and JT44 modes are essentially unchanged.

You can download the upgrade from the WSJT home page, http://pulsar.princeton.edu/~joe/K1JT, and soon also from the European mirror site http://www.qsl.net/dk5ya. To upgrade an existing WSJT installation of Version 1.9.4 or later you should download and execute the file UPD230.EXE, which will replace your existing files WSJT.EXE and WSJT1.DLL with new files of the same name. It should be possible to detect your own signals on two metres with a single yagi and 120 watts.

Microwave News: Offset dishes vs. Prime Focus dishes?

For small dishes, the feed blockage is significant on a prime focus dish, so the offset has a significant advantage. Even on larger dishes, feed and support structure have some blockage loss. Measurements and operating experience suggest that a 450mm offset dish at 10 GHz can perform as well as a 600mm conventional dish with a good feed and feed line.

Better feeds are available for offset dishes, with modest illumination angles, than are available for wide illumination angles. Deep dishes, with f/D < 0.35, are particularly hard to illuminate efficiently. My belief is that the ones used for TVRO were under illuminated for better G/T The feedline is an important factor. With an offset dish, it is not hard to keep it to a few inches, while a conventional dish either has a feedline of at least the focal length, or has a large box of equipment behind the feed.

Offset dishes can be quieter on receive. Most of the time, they are pointed so that the feed is pointed at quiet sky, making them quieter. Also, a better feed pattern picks up less stray noise, while the feed support structure on a conventional dish tends to add scattered noise. Radio astronomy dishes take pains to control the shape of the support structure to minimize these effects ... from Paul Wade W1GHZ

For views of a slightly larger dish, images of the reinstallation of the Parkes Radio Telescope (THE DISH!) zenith gearboxes, look at John Sarkissian's latest web page http://www.parkes.atnf.csiro.au/people/jsarkiss/shutdown_2002/ . They are just starting the fourth day of grinding each tooth of the rack!

In closing

It is with regret I have to announce that Eric VK5LP has advised me that the VHF/UHF station of VK5LP ceased operating in August 2002. After 41 years of licensed activity on the bands from 50 to 1296 MHz and 10 GHz, his disability and wheelchair confinement prevents him from operating, due in the main to his inability to keep his station operational.

The final crunch came with the destruction of his antenna system by galahs and the likelihood such destruction would continue if repairs were made. Eric has retained his TS680S because of its capacity to operate on the HF & 6M bands and has a general coverage receiver included. He will retain his callsign, his interest in VHF/UHF and membership of the WIA. See elsewhere in the magazine for further details. Eric has had a long period of enjoyable activity on VHF and UHF and made many friends. He thanks them all for their companionship and particularly their support during the 30 years he wrote "VHF-UHF An Expanding World."

I wish to advise that Rej Allinson, VK2MP, passed away on Friday October 11th, 2002. I understand that Rej was in hospital preparing for surgery, but was overpowered by a serious illness before the operation could take place. Rej was well known amongst the VHF fraternity in South Eastern Australia. His presence during the regular aircraft enhancement Skeds will be sadly missed ... Ian, VK1BG.

I'll leave you with this thought.. "All of the animals, except man, know that the principal business of life is to enjoy it"

Will's Page

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076 will2@iinet.net.au

Modified Sine Wave Inverters

I have spent much time installing amateur radio gear in my recently purchased 4by4 along with a 240 volt inverter. What better than to have amateur radio HF on board. When heading bush! The 240 volt inverter is to run the odd electrical items like battery chargers etc. One of the local electrical retailers was throwing out a 300 watt "modified Sine wave" inverter at half its original price, too good to miss. I tried out the inverter it worked well. However the results with a television were not as I had hoped. The picture had horizontal lines and the sound a most annoying buzz. Modified Sine wave means not a sine wave, but just what was the waveform like? Placing a CRO across the 240 volt output produced the accompanying drawing showing the very "square" wave nature of the modified Sine wave and a peak voltage of 350 volts.

As you can see the waveform is not the usual square wave but a pulse with lots of zero volts. It could be said this waveform is a little closer to a Sine wave than the full duty cycle square wave but it sure requires a good imagination.

I tried placing a high voltage capacitor across the 240-volt output, to see if it would round off the modified Sine wave but this had no effect. A friend suggested running the inverter output through a one to one power transformer, but this also did nothing. I tried several televisions and they all had the same lines on the vision. The interference was not severe but annoying. Perhaps extra filtering in the television power supply might solve the problem but I did not want to fiddle around.

The reason for the change from the original 100% "square wave" to the narrower "square wave" may be to do with power supplies in some equipment requiring the higher peak voltage in a Sine wave as compared to the original "square wave". The peak voltage in a Sine wave is 340 volt and this reflects in regulated DC power supplies as a higher average voltage across filter capacitors. The original square wave inverters had a peak voltage of 240 volt and this means a lower voltage out of the rectifier that is applied to the filter capacitors that don't now have a higher peak voltage to charge up to. The lower voltage then applied to any regulator could be too low for the regulator to function properly. The modified Sine wave inverter has a peak voltage of 350 volt, the same as a Sine wave. The narrower pulse produces an overall power close to a true Sine wave.

Pure Sine Wave

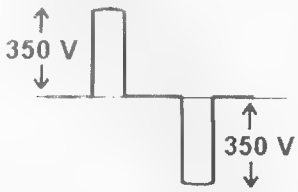
With my interest in inverters whetted I purchased a Pure Sine Wave inverter and decided on a 150 W one at around $300, considerably more than the modified Sine wave inverter but a good investment for retirement. On a trip away to Windy Harbour on the Western Australian south coast, where there is no mains ac, this inverter worked well until it was plugged into a couple of normal 240 V mains fluorescent tubes. The inverter failed and refused to operate again. I suspected that for some reason the fluoros had killed the inverter, so on returning home I re-read the instructions. No mention of any problems with fluoros. It was replaced under warranty and I decided to upgrade, for a little extra, to a 300 W pure Sine Wave model. I tested this extensively including placing a normal 4 foot 240 V fluoro across the inverter. All worked well until I placed a second fluoro, when this inverter failed also! It too was replaced under warranty. I explained what had happened and my belief that fluoros were killing the inverters. The fluoros at Windy Harbour were not the same as those at back home. This ruled out some unexplained problem with a particular fluoro.

The store manager (Jaycar) set up this third replacement inverter on the shop counter and we had up to five different fluoros working well from it. Perhaps it was just bad luck but I did not believe it. I arranged to bring my fluoros into the store the next day and do the test while the manager was watching. Sure enough on placing the second fluoro into circuit the inverter died! The manager wrote me out a replacement document and said he would get back to me.

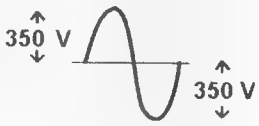
Back home I nervously placed one fluoro across the modified sine wave inverter and all worked okay. A second fluoro worked but only for a couple of minutes and then the inverter failed, but not completely; it worked after the fluoros were disconnected. Repeating the load test gave the same results.

I have thought of one possible reason for the problem. Mains operated fluorescent tubes are inductive and require a power factor correction capacitor of around 3µF to restore the power factor back to one. When 240 volt is first applied to a fluoro, the fluoro tube is not effectively in circuit until it strikes. However during this period the power factor correction capacitor is in circuit as it is connected directly across the mains. Maybe the inverter cannot run into a highly capacitive load, which adds up to 6µF with two fluoros connected. Why the five fluoros worked at the store I don't know. Perhaps they did not have power factor correction capacitors.

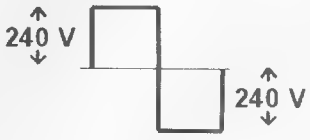
Have any readers had similar problems with Pure Sine Wave inverters running 240 volt fluorescent tubes, if so let me know? I will let you know the outcome with the electronics store.



MODIFIED SINE WAVE



TRUE SINE WAVE 240V RMS



SQUARE WAVE

Over to you

Novice Cram Course - A Review?

Well who decided to give the task of reviewing Ron Bertrand's product to C. Low, B. Edmonds & C. Taylor for heavens sake? AR October 2002

A bit like asking the Holden Dealer Team to review the new Ford Falcon! How could they contain themselves? The 'review' ends up at the very least 'picky', if not downright 'catty' and is a poor bit of biased journalism. It's interesting that the editor admits to 'bringing the comments together' which is probably code for a 'strong edit' and one can only guess what was left out!

I had the good fortune to meet Ron Bertrand many years ago when attempting to exit from my CB boom roots into Amateur Radio. I did not do any of his courses but know many who did and there are not too many who know him who would doubt his total dedication to amateur radio. He is the sort of bloke who will always help and encourage would-be hams to become licensed.

For my NAOCP theory, I used a small book from Tandy called "From 5 watts to 1000". It did not cover the whole NAOCP syllabus, but I went into that exam knowing every word of that book and passed with 92%. Upgrading was a similar exercise in cramming. In those days before the exams became multi choice, the theory exam was an essay type with, I think,12 questions and you had to write essay answers to 6 out of the 12. I simply looked at as many past exam papers as possible and learned all about those questions that recurred, succeeding at my second attempt. Now you can pontificate and call me a 'black box operator' if you like, even an 'ex-CBer', but I am still active and still enjoy operating. I didn't want to be a radio engineer! I wanted to operate ham radio and that exam and the CW had stood between me and that goal. How I made it is less important to me than the fact that I did.

Now I'm very aware that the three reviewers have also been very dedicated to the ongoing education of amateurs over a long period of time and do a fantastic job. But surely their aim should be to encourage all potential amateurs to qualify for a licence in any way possible. Potential amateurs like the CB operator who picked up AR at the newsagent and wrote an interesting letter "Why Amateur Radio is dying" AR October 2002. If their review of Ron's course has 'turned off' just one potential amateur who could have succeeded with Ron's course, then that's one who may never try again.

At the end of the day, we need more licensees who are actually going to operate on the bands - "Use 'em or lose 'em" - and while Ron would want his students to understand their subject, his primary object is to get more people licensed. By all reports, over the years, he's done a damn good job and this product, being PC based, sounds the goods since we are losing potential hams to other communication formats particularly PCs.

One of my mentors told me long ago, that if you can't say something good about someone, you should say nothing!

Neil Cornish VK2KCN
neilcorp@kooee.com.au

On air behaviour

On a recent Saturday afternoon a friend and I were evaluating his antenna as we talked on the lower end of the 40 metre band. Ross VK1UN/2 was the station I was talking to and even though he only had low power signals were very strong.

Suddenly a voice arrived on the frequency uttering that I was causing interference with the statement "your signal is broad and way over driven" this caused me to examine all the settings which appeared normal. Ross and I persisted on the frequency and the voice again interjected "you should get back to the chicken band" at which I requested a callsign.

The callsign was supplied (from the East Coast of Australia) and given the circumstances Ross and I decided to try another band anyway. When I returned to the frequency it was obvious that a net was to happen very close to the frequency we had been using, probably half a kilohertz away or so. Conditions on the day were enhanced; later other stations confirmed that no detectable problem could be found with my transmission during a two hour or so contact.

I read the timely comments by The Federal WIA president regarding on air behavior, this event has again encouraged me to consider selling the few pieces of amateur equipment I own and forgetting the hobby.

What if any is the significance of a Six Metre DXCC anyway, let alone 24 years on air since leaving High School!

This hobby may be seen by those whom administer it as an anachronism!

Of course this is the minority of situations that occurs, my faith has been restored by common sense operation a little in the meantime!

73 de Neville VK2QF / VK2ANZ,
(ex 4W/VK2QF).
6m DXCC #289.

PLAN AHEAD
for
May 2003
WIA
Federal
Convention
★
MDRC
Hamfest
Glen Waverley

HAMADS

FOR SALE NSW

• **FT-757GX II** S/n OD 4206987 $600. **FT-212 RH** S/n 9G-330232 $275. VK2DJM AH 2030hrs. Firm. Phone 02 6686 8742.

• **Packet equipment**. 1200/4800 Tiny 2s radios Pakratt MBX232, cables, diode matrix, books. David VK2BDT, Goulburn. If interested phone 02 4821 5036

• **Valve tester Taylor Model Windsor 45C** (ex-PMG) Complete with book and valve chart and 100s of new and secondhand valves $275. Reg Rundle, Greenwell Point NSW. Phone 02 4447 1493. run@shoal.net.au

• **Antenna Hustler 5BTV** HF trap vert (unused) $300; **Hustler 90-MTK** 30m kit for **5BTV** (unused) $70; 100 m coax cable **DSE RG58CU** 50 ohm (unused) $70; 100 m cable **H/D 26/030 red/blk** (unused) $80; **3-way coaxial antenna switch, Southern Star D-5206** $15. Cyril formerly VK2ACQ Phone 02 9701 4312 (leave message if unattended)

• BOOK: **"Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations"** 3rd Edition (236 pages), 610 gm, 1.5 lbs, now available. Probably the World's best compilation of this info now available. Q,X,Z Codes, 142 Phonetics, 24 Morse, 8 Needle codes. Myer, Phillips, 10, 11, 12, 13 and other codes. Much other info, abbreviations, procedures and methods. AU$25 + P&P. Post calc from Postcode 2480. Internet: http://www.nor.com.au/community/sarc/phonetic.htm. John Alcorn, VK2JWA, QTHR, Phone 02 6621 5217, vk2jwa@sarc.org.au

• **Power Supply 13.8v (adjustable) 60 amp** continuous choke input filter weighs 25 kg $200 ono VK2ZHR. Phone 02 4930 7671

WANTED NSW

• **Receiver, general coverage**, for amateur radio minded high school student. Must be reasonable priced. Reply Peter VK2DBI, QTHR. Phone 02 6367 5095

• **Kenwood SW-2000 SWR meter** with SWC-3 remote coupler VK2KL, QTHR. AH Phone 02 6584 2997, BH 0408 818 442

• **Yaesu FRG-100 communications receiver** in good condition with power supply and manual, if possible. John VK2GQK, QTHR. Phone/fax: 02 6568 3323, email: jwallvk2@tsn.cc

FOR SALE VIC

• **Yaesu VX5 H/H triband** as new, comes with new spare Lithium-ion battery, Sp/mic, charger, filtered DC power adaptor, carry case ADMS-IE software and more. Ser no 9K160317, $600. **Yaesu VX1 H/H** micro dual band, comes with new spare Lithium-ion battery, filtered DC power adaptor, carry case, 30 watt linear. As new, $300. Ted Filuk, VK3KTF, 3 Hare Court, Bacchus Marsh 3340. Phone 03 5367 4439

• **Kenwood transceiver TS-440S**, very good, in original box, serial no 7051799, with automatic tuner unit and user manual, $650. Brian VK3WP, QTHR. Phone 03 9723 6110, email kendersbee@yahoo.com

• **Dec'd estate**: **Kenwood HF transceiver TS-43X**, pwr supply **PS-430**, Auto antenna tuner **AT-250**, speaker **SP-430** and mike (hand and desk) $1,800 ono. **Yaesu comm receiver FRG-7700**, tuner **FRT-7700** & converter **FRV-7700** $350 ono. Yaesu transceiver (**FT-211 & FT-411**) $150 each ono. Bruce. Phone 03 9722 2310, henriette2@optusnet.com.au.

WANTED VIC

• **Service manual and instruction manual for Kenwood TS-130S**. All costs met. Stephen VK3JY, QTHR. Phone 03 9836 3841

• **Technical service book for Kenwood TS-820S or TS-520** VK3CFF, QTHR. Phone 03 5338 1927

• **FT-790 Yaesu 70cm** all mode portable transceiver. Must be in good working order. Contact Ian VK3AQU AH Phone 03 57 511 631, or email lorian@netc.net.au

• **Kenwood R-820 Receiver,** reasonable condition. Ron VK3OM, QTHR, Phone (03) 59443019

FOR SALE QLD

• Quantity **'QST' from 1926 onwards** to approx 1952 save breaks for WW2. Similarly **'73'** and **'CQ'** plus other mags. Must clear lot, moving into residential homes. Sidney Grantham VK4SG, 36/17 Mile Rocks Road, Oxley Qld.

• **Ceramic Roller inductors**, **ceramic variable capacitors**, **VHF AVO valve characteristic meter MK4** with valve data manual and handbook, **HP CRO camera**. John VK4AAF Phone 07 4928 6573

• **Two (2) TS-120S**, one good and one for parts. One **TS-120V** and remote VFO, both good. Reply to VK4DV QTHR. Phone 07 4928 5537

WANTED QLD

• Ex army **WWII TX/RX type 208 set** manuf. by Radio Corp. Melb c 1942/3. Also **Kingsley AR7 power supply** 12/240V. Ray VK4FH, PO Box 5263, Daisy Hill 4127. Phone 07 3299 3819, fax 07 3299 3821

• **Barlow Wadley XCR-30 receiver** in good condition. Top dollars paid. Ray, VK4ZKI QTHR. Phone 0418 708 315, email ivins@gil.com.au

• **Plessey ICs** SL610, SL621, SL622, SL630, SL640, SL641. L Schmidt, VK4JZ, 62 Laguna St, Boreen Point 4565, phone 07 5485 3324

• **Cavities wanted**, two for 2 metres. Phone 07 5578 2293 or email: smokey2@winshop.com.au, VK4KD.

WANTED SA

• **Large power transformer,** 385 volts CT 385 volts 100 mA or more, filament 5 volts and 6.3 volts. Terminal board essential. NOT loose wires. VK5ZLC QTHR

• **To restore** Army Landrover Series III fitted for radio we need: for **Radio Set AN/GRC-160**: amplifier power supply group OA-3633, mounting MT-1029, cable CX-4720. And for **Radio Set AN/GRC-106A**: amplifier AM-3349, mounting MT-3140, headset H-227/U, key telegraph KY-116/U and copy of manual TM 11-5820-520-35. Harro VK5HK, QTHR. Phone 08 8323 9622

WANTED WA

• **9MHz HC-49 crystal**, prefer Kenwood part L77-0981-05. VK6ABS, QTHR. Phone 08 9075 4136

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet***. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or printed clearly, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

FOR SALE NT

• **Kenwood YK-88CN-1 CW narrow filter**, 8830 kHz cf, 270 Hz bw, $30. **ICOM OPC-589** microphone adapter cable, 8 pin modular to 8 pin standard microphone, new in unopened original packaging, suits ICOM IC-706 (others?), $30. JJ, VK8JJ, Phone 08 8953 0065, vk8jj@ozemail.com.au

WANTED NT

• **Icom IC-4A or IC-04A 70cm FM**, handheld in working order. Battery condition not important. **Icom IC-706 Mark I**, early model preferred, in working order. Accessories not important. Jeff VK8GF, QTHR. Phone 08 8952 1016 AH, emailvk8gf@austarnet.com.au

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADERS Advertise in AR

03 9756 7797

TRADE ADS

PSK-31, SSTV, RTTY SOUNDBOARD INTERFACES

Fully isolated, ready to plug in.
http://www.G3LIV.CO.UK,
johnny@melvin.com, G3LIV QTHR.

AMIDON FERROMAGNETIC CORES:

For all RF/electronic applications.

See our website for complete data on all cores including prices.

RJ & US Imports,
PO Box 431, Kiama NSW 2533.

A 3.5" PC disk containing all data is available for $5.00 incl. post.

www.catchnet.com.au/~rjandusimports

Agencies at: Active Electronics, Tas; Truscotts, Electronic World, Melbourne; TTS Systems, Tyabb; Tower Communications, Perth; Haven Electronics, Nowra.

HF, VHF, UHF ANTENNAS & ACCESSORIES

Alum towers, guys etc. Diamond VSWR/PWR meters. HD copper ant wire & insulators. TX tubes & pwr transistors. Quality coax cables & connectors. Free advice & catalogue.
ATN Antennas Ph 03 5492 2224 Fax 03 54922666, email atnant@ruralnet.net.au

THE WIA BOOKSHOP

DISCOUNTS FOR WIA MEMBERS

ARRL

RSGB

EDUCATIONAL

CALLBOOKS

COMPREHENSIVE RANGE

109 Wigram Street, Parramatta,
New South Wales, Australia.

PO Box 432, Harris Park,
NSW, Australia 2150.

Phone: +61 2 9689-2417

Facsimile: +61 2 9633-1525
Toll free in New South Wales outside Sydney: 1800 817-644

Office Open 11am - 2pm Tuesdays & Thursdays Email: vk2wi@ozemail.com.au

We take mail, phone, email and fax orders

How to submit material to *Amateur Radio*

Electronically:

Text: Microsoft Word, Text or RTF file, ***no graphics embedded***.

Diagrams: 300 dpi jpeg (preferred), tiff or pdf (last resort!)

Photos: 300 dpi jpeg, tiff or eps. Light coloured background, but beware of flash shadows. If submitting for cover, send 600 dpi jpeg, preferably portrait rather than landscape orientation.

Email to: edarmag@chariot.net.au

Hard copy:

Text: Preferably typed or word processed, one and a half spacing. If handwritten, must be clear

Diagrams: Clear black lines and labelling, for either scanning or redrawing by Amateur Radio

Photos: Light coloured background, but beware of flash shadows. When photographing equipment remember that it will be reproduced in black and white so aim for contrasting colour *tonings*, e.g. yellow and blue will scan as white or light grey, but red will come up black. For cover photos portrait orientation is preferred over landscape.

Send to: The Editor, *Amateur Radio*,
34 Hawker Crescent, Elizabeth East SA 5112

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the

Radio Amateurs Old Timers Club Australia

or if you have been licensed for **less than 25 but more than ten years**, you are invited to become an **Associate Member** of the RAOTC.

In either case a $5 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,
3/237 Bluff Road
Sandringham VIC 3191

or call Arthur VK3VQ on **03 9598 4262** or Allan VK3AMD on **03 9570 4610**, for an application form.

ADVERTISERS INDEX

Com-an-tena....24
Connektron....33
G & C Communications....27
Icom....OBC
Strictly Ham....8
TTS....16
WIA Call Book....IFC

http://www.hamsearch.com
a not-for-profit site that is a search engine for hams

Email your hamad

Then we just cut and paste

You proof it, you retain control

newsletters@ozemail.com.au

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Linden S Orr	VK1LSO

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue, Thurs, Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Chris Minahan	VK2EJ

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	Bill McDermott	VK4AZM

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http://www.wia.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Mike Jenner	VK7FB
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 144.850.

Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

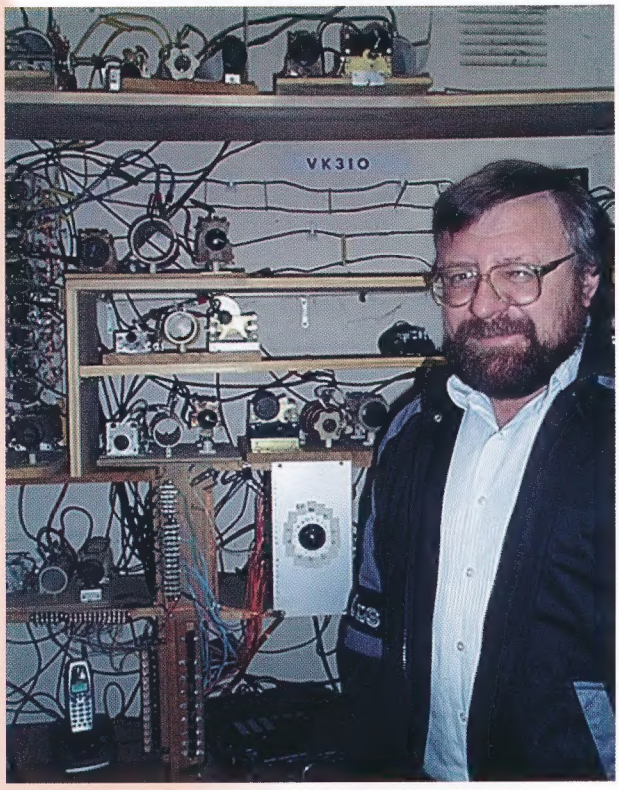
Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

Hams at Home

VK3OM Ron Fisher's shack. A well laid out installation. Ron is a member of the Amateur radio Publications Committee and has many years' service supporting the production of Amateur Radio Magazine. Ron's knowledge of Amateur radio equipment is also much in demand. Ron is proficient with a camera and many of his photographs have been used in the magazine.

VK3IO Ron Tremayne at home in Cockatoo. Ron as you can see likes open wire feeders. The picture shows his Kenwood TS690S, the open wire antenna relay switching matrix and some of the Link Coupled Open Wire feeder ATUs. There are 18 altogether (two per HF band) and they match to two 160 metre, Top Band, dipoles. This extreme solution saves retuning when changing bands.



ICOM'S GREAT CHAMPIONS

IC-756PROII

NO FILTERS REQUIRED

Sharp & soft IF filter shape • Improved 3rd IMD & wide dynamic range • One-touch record/play
Digital voice memory • Extended 1/4 Tuning step & BPF functions for SSB-D mode • 32-bit floating-point DSP
and 24-bit AD/DA converter • SSB/CW synchronous tuning • 4.9-inch color TFT LCD

IC-718

A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad • Optional AF DSP capabilities, including noise reduction & auto notch function • It's versatile, compact & loaded with features.

IC-910H

The new dimension in the VHF/UHF world!

Tri band multimode transceiver • 2M -100W, 70CM - 75W, (optional 23CM, 10W) • 9600bps packet operation • Satellite communication
Reverse/normal tracking doppler shift compensation
CIV capability for PC control • Optional 2.4G down convertor.

IC-706MKIIG

HF • VHF UHF

The amazing evolution of the legendary 706.

Now includes 70cm @ 20W and 50W on 2m
Standard feature dsp • Built in sub tone encoder & decoder
Tone scan • Mosfet PA • You get base station performance and features in a mobile rig sized package.

NEW

IC-T90A

A new 5W Triband handheld

VHF/UHF FM 2M, 6M, & 70CM
Wideband receive 495 KHz - 1 GHz
555 Alphanumeric memories • 13 Scan modes
DTCS & CTCSS encode & decode
DTMF encoder (10 memories)
Wide/narrow transmit capability.

ICOM
Clearly Ahead
2 YR WARRANTY

find your nearest ICOM dealer at

PH189_AM02

www.icom.net.au or (03) 9387 0666

Volume 70 Number 11 NOVEMBER 2002

Print Post Approved PP349181/00420